

ENCYCLOPEDIA OF DIET

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A Treatise on the Food Question

IN FIVE VOLUMES

EXPLAINING, IN PLAIN LANGUAGE, THE
CHEMISTRY OF FOOD AND THE CHEMISTRY OF
THE HUMAN BODY, TOGETHER WITH THE ART OF
UNITING THESE TWO BRANCHES OF SCIENCE IN THE
PROCESS OF EATING SO AS TO ESTABLISH NORMAL
DIGESTION AND ASSIMILATION OF FOOD AND
NORMAL ELIMINATION OF WASTE, THEREBY
REMOVING THE CAUSES OF STOMACH,
INTESTINAL, AND ALL OTHER
DIGESTIVE DISORDERS

BY

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VOLUME II

NEW YORK CITY
CORRECTIVE EATING SOCIETY, Inc.
1917

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PUBLISHED AUGUST, 1914

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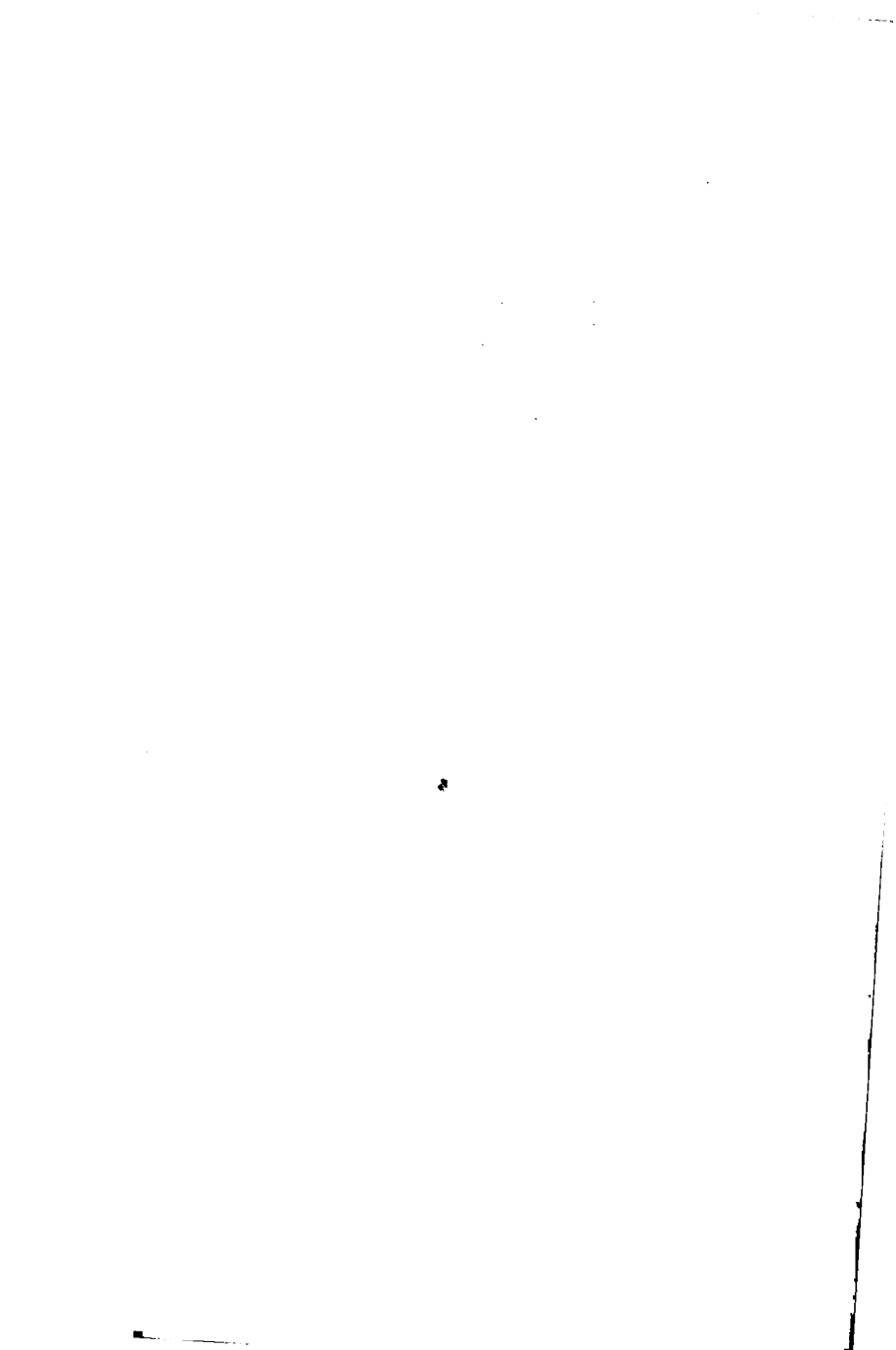
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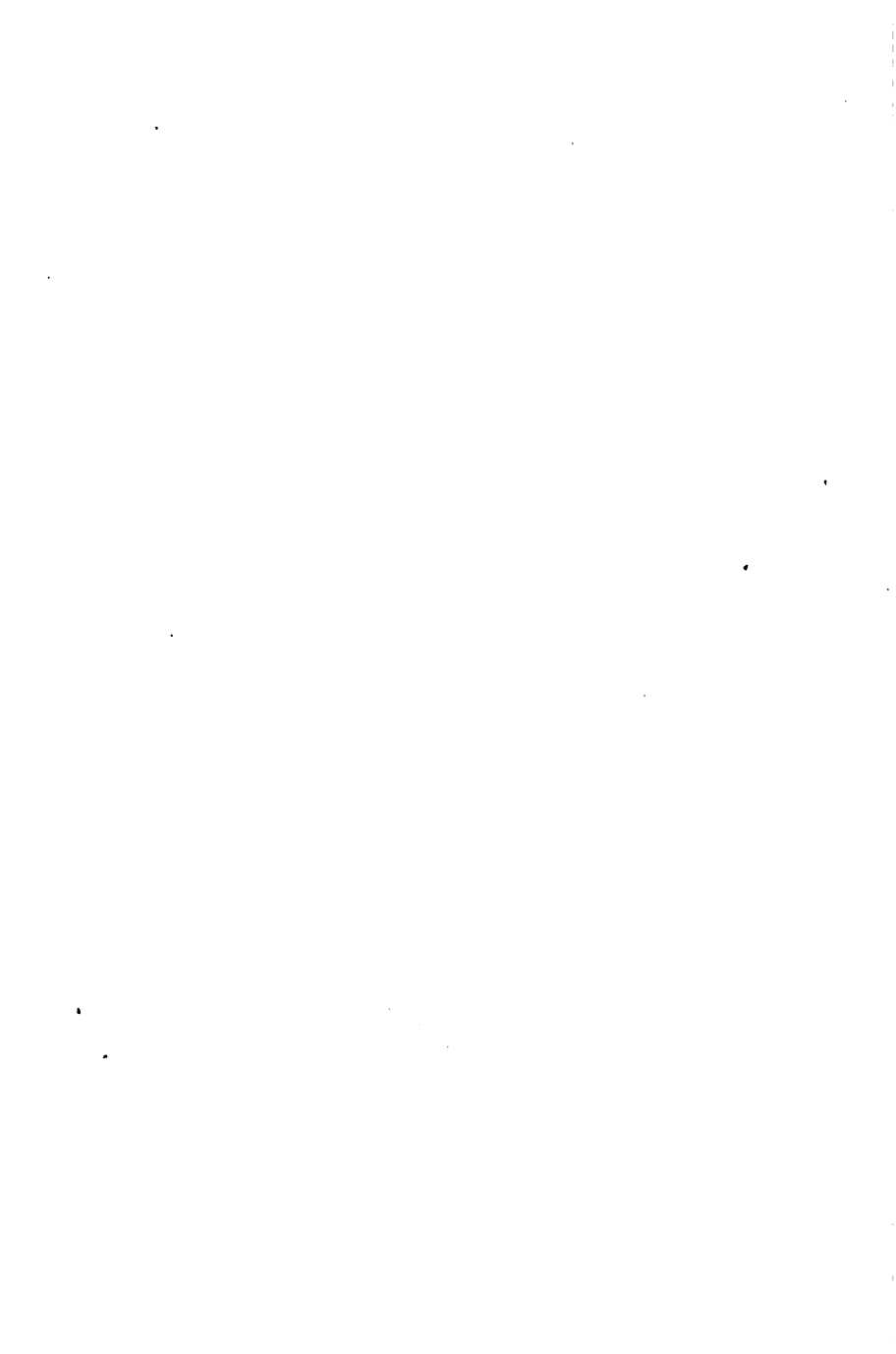
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LESSON VIII

FOODS OF VEGETABLE ORIGIN



LESSON VIII

FOODS OF VEGETABLE ORIGIN

GRAINS

Grains constitute the most important article of human food, not so much on account of their superior nutritive, curative or remedial value, but chiefly because of their prolific growth and abundant production in all civilized countries throughout the world.

The variety of grain produced in the various countries depends largely upon the climate and the habits of the people.

The predominant use of rice by the Asiatics, wheat by the Europeans, and maize by the aboriginal American, shows how people adapt themselves to the foods of prodigal growth. It also shows the

effect different foods have upon the physical development of the various tribes that inhabit these remote countries.

Wheat is said by some writers to be a complete food. This is not strictly true.

Wheat contains a very small percentage of fat, and while fat can be made in the body from carbohydrates, it is more natural, and entails less work upon the digestive organs and the liver if the diet is balanced so as to contain the required amount of fat, and all other nutritive elements in the right or natural proportions.

A diet composed of wheat alone would contain 70 per cent of carbohydrates, chiefly in the form of starch.

Results of eating too much starch

While this would be perfectly wholesome, it would give the body an excess of starch which would ultimately result in intestinal congestion, gout, rheumatism, hardening of the arteries, and premature old age. Wheat contains a larger quantity, and a

greater variety of proteids than any other grain, but wheat proteids are more difficult to digest than the proteids of milk, eggs, or nuts.

Wheat varies greatly in composition, according to the soil and the climate in which it is produced. This fact is not recognized or considered by the average writer on dietetics, who eulogizes wheat as the wonderful "staff of life," because certain food tables show that wheat contains 13 per cent, while corn contains only 10 per cent of proteids. It is neither the proteid nor the carbohydrate content that determines the value of any grain as food, but rather the proportions of the different elements of nutrition it contains, that being the best which is more nearly balanced to meet the requirements of the human organism.

Rye may be considered in the same class as wheat. Chemically, the contents are very similar, and the effects upon the

Composition
of wheat

body are very much the same. It contains a larger per cent of cellulose, and

Rye less gluten than wheat, therefore as a remedial food it is superior to all other grains for exciting intestinal peristalsis, thereby removing the causes of constipation.

The nutritive elements of barley are similar to those of wheat and rye. It

Barley contains less cellulose fiber, and therefore a larger per cent of digestible nutrients than any one of the cereal group except rice. It has never become popular as a bread-making grain because—

- 1 The nitrogenous or gluten substances are not tenacious enough to make the conventional "raised" bread
- 2 The flour is dark in color
- 3 The grain is so hard and "flinty" that it is very difficult to mill it down to the required fineness

For these reasons barley has been greatly neglected as a food commodity. From a chemical standpoint it deserves a much higher place in our dietaries than it has hitherto been given.

The composition of oats varies somewhat from that of wheat, rye and barley.

Oats They contain a larger proportion of both fat and proteids, and form a desirable food if correctly prepared. The objection to oats as an article of diet is the hasty manner in which they are usually prepared, which converts them into a gummy mass of gelatinized starch, entangled with the peculiar gummy proteid of the oat grain. Thus prepared the oat is a most prolific source of disturbed digestion.

Corn is the cheapest material capable of nourishing the human body that is produced in the temperate zone. It is less digestible, and more deficient in the salts than the group of grains thus far mentioned,

It is very wholesome, however, but in no way superior to other grains. In the future corn will probably play an increasing part in the problem of feeding the world, as a cheap source of carbohydrates, and for the purpose of manufacturing glucose.

In all tropical and semi-tropical countries rice occupies the same position that corn does in the temperate zone. It is more deficient in proteids and in fat than any other food grain, while the starch of rice is more easily digested than any other form of cereal starch. This grain, however, is almost entirely devoid of mineral constituents, and for this reason it is productive of serious nutritive derangements when indulged in too freely. This deficiency can be overcome by taking a liberal quantity of green salads, or fresh vegetables, whenever rice is eaten.

Buckwheat is a grain whose consumption is very limited, owing to the fact

that it is dark in color. It compares favorably with wheat and corn as to nutritive elements, and is now much used as a winter food by the northern people.

Buckwheat

USES OF GRAINS

The use of grains as an article of food may be considered under three headings:

- 1 As a source of energy
- 2 As a source of nitrogen
- 3 Grain as a remedial food; that is, as a source of cellulose or roughness, for the regulation of intestinal action

(1) GRAIN AS A SOURCE OF ENERGY

All grains are composed largely of starch, therefore the question of energy

to be derived from this source is one of assimilation and use. The use of grains in the diet deserves the most careful consideration, and the study should not be confined to any particular grain, but to the entire group, and especially to the method of preparation, and the quantity that should be consumed under the varying conditions of age, temperature of environment, and work or activity. The conventional American diet contains such an abnormal quantity of grain-starch, and the methods of preparation are so unnatural, that the Food Scientist, in practise, will find many people whose digestive organs have become so deranged that he may deem it necessary to prohibit grain-starch almost entirely.

Too much
grain con-
sumed

The grown person, pursuing the ordinary sedative occupation, should not eat more than three or four ounces of cereal food a day, while the manual laborer should not consume more than five or

six ounces each twenty-four hours. This quantity contemplates cool, or winter weather. In summer this quantity should be reduced according to work or activity.

(2) GRAIN AS A SOURCE OF NITROGEN

Grain as a source of proteid has received undue consideration in hygienic works. Upon an allowance of one-fourth of a pound of grain per day, which would make four vienos, with a nitrogen factor of six, we see that 24 decigrams of nitrogen would be supplied from the grain. The variations between the proteids contained in two varieties of breakfast food is seldom more than two or three per cent. This would amount to a variation in the daily intake of nitrogen of about five decigrams, an amount, too little to be worth consideration.

Grain proteids are not so easily digested as are the proteids of eggs, milk

and nuts. The following list of grains and grain products is given in the order of the digestible nitrogen they contain:

Digestibility
of grain pro-
teids

- 1 Gluten or dietetic foods
- 2 Barley
- 3 Macaroni
- 4 White flour
- 5 Whole wheat—Graham flour
- 6 Rye
- 7 Oatmeal
- 8 Corn products
- 9 Buckwheat
- 10 Rice
- 11 Pure starches

(3) GRAIN AS A REMEDIAL FOOD

Grain is constipating or laxative in effect according to the way it is prepared

and eaten. Whole grain, especially wheat and rye, will normalize intestinal action,

Remedial value of the whole grain

and in some cases act as a laxative, while the same grains made into flour, and milled in the usual way, are constipating. Ordinary wheat bran is one of the most effective remedies known for intestinal congestion, and it can be administered or regulated with much accuracy, according to the severity of the case. An intelligent understanding of the use of bran in treating constipation is quite necessary. The object should be to employ bran as a remedy in chronic cases, and to vary the quantity, the quality, and the cellulose content of the meals. In rare cases, bran may produce

Wheat bran a natural remedy for constipation

irritation; in such cases it should be cooked three or four hours, and eaten only with hot water. In other cases the mechanical stimulation of the peristaltic action is not effective. The practitioner can usually

determine these questions on the third or the fourth day.

Bran should be administered about as follows: In cases of severe constipation, one rounding tablespoonful in water, just after rising; one-half teacupful, cooked, taken at each meal, and a heaping tablespoonful in water just before retiring.

The following table gives, in the order of their laxative effects, a few of the principal grains:

- 1 Flaked or whole rye
- 2 Flaked or whole wheat
- 3 Flaked or whole barley
- 4 Flaked or whole oats

NUTS

The true nut is the seed of trees and shrubs which stores the greater propor-

tion of food material for nourishing the seedling in the form of vegetable oil. The

**Nuts as heat
producers** nut is very largely a fuel food or heat producer, therefore among the primitive

racés, along the warmer belts of the earth's surface, the nut was not of so much importance, but in the northern or colder countries, where the body-heat meets with such powerful resistance from climatic environment, the nut is of equal, if not of more importance than fruits.

There are a few miscellaneous articles of food that are classed as nuts, which do not belong primarily to this group.

In the following discussion I will take up the several varieties of nuts in the order of their general value as articles of human nutrition:

There are several species of pine seeds from many varieties of trees, and from many different countries.

Pine nuts The Italian pine seed or nut, called in Italy "Pignon," and in this

country "Pignolia," is the refined or cleansed nut, called by the writer "protoid" nut. This is a coined word given to it because it contains the highest percentage of protein of any other food that has yet been analyzed. The "protoid" nut contains 34 per cent protein, 47 per cent oil, 9 per cent carbohydrates, 4 per cent ash, and 6 per cent water. The relative proportion of nitrogen to

Composition
of the pine
nut

energy is not so great as in some other food products, such as eggs, or skimmed

milk. These contain a large per cent of water, so that the protoid nut, while containing pound for pound more nitrogen than any other known food, has a lower nitrogen factor than foods which do not contain so large a percentage of fat. This same rule will

The nitrogen
factor in nuts

apply to all nuts. They are rich in protein, but because

of the large amount of fat which supplies energy in its most condensed form, the

nitrogen factor, which is the relation between nitrogen and energy, is often lower in many nuts than in grain. The chief advantage of protoid nuts over other varieties is in their softness, consequently they are more digestible, and more assimilable than any other specimen of the nut family.

The pine nuts which grow prodigally in the western part of the United States are not so rich in protein as the protoid nuts, but in other respects are very excellent food. The annual crop of these is about one million pounds, but is variable, a full crop being produced only about every third year. They are harvested in a very crude way, chiefly by Indians, from the remote districts of New Mexico, Utah and California.

The almond is a most desirable food. It contains 17 per cent nitrogen, and 54 per cent fat. The flavor is very agreeable, and the nuts, in digestibility, rank next to protoid nuts.

Almonds

They may be substituted for each other in many dietaries.

The pecan, which is a species of hickory-nut, contains 13 per cent protein, and 70 per cent fat. It is a very

Pecans

delicious article of food, though somewhat inferior to pine nuts and almonds, in digestibility, and as a source of nitrogen.

Brazil-nuts contain 18 per cent protein and 66 per cent fat, and rank high as an article of body-heat and

Brazil-nuts

energy.

Soft-shelled or white walnuts are commonly known as "English walnuts,"

White walnuts

though they are chiefly grown in France and in California. These nuts contain 24 per cent protein, 63 per cent fat, and form one of the staple nut foods of both Europe and America.

Filberts or hazelnuts contain 15 per cent protein, and 65 per cent fat. They differ widely from the varieties hitherto

named, and are less digestible. They should be masticated exceedingly fine, and should not be taken by one whose digestion is particularly weak.

Hazelnuts

Butternuts are a species of walnut. They contain 27 per cent protein, 61 per cent fat, and rank in the dietary along with English walnuts and Brazil-nuts.

Butternuts

Beechnuts contain 22 per cent protein and 57 per cent fat. Owing to the difficulty of gathering or harvesting, these nuts have never become popular as an article of human food. They are in the grain class, therefore rank high as an energy-producing material.

Beechnuts

The cocoanut is a product of the palm tree, and, while quite distinct from our nuts of the temperate climate, is a very valuable and abundant food, deserving more extended use. Cocoanut is about one-half fat,

Cocoanuts

contains 6 per cent protein and 28 per cent carbohydrates. The milk of the cocoanut is an excellent article of food, and used by the natives in the tropics in many remedial and medicinal ways.

PEANUTS

Peanuts, which are so widely used as food, are on the boundary line between nuts and legumes. They were classed as peas by some of the early botanists, and as nuts by others. The name indicates the compromise that was made between the two theories. Another legume, which is largely used in Japan and China is the soy-bean. Both the peanut and the soy-bean are better balanced, and more nutritious than common beans and peas. They are similar in composition, and contain about equal quantities of protein and fat, some peanuts yielding as much as 48 or 50 per cent oil. Neither are

Value of
pea-nuts and
soy-beans

palatable in their natural state, but both are very delicious when their starch content is converted into dextrin by roasting. The Japanese have a method of preparing the soy-bean by a process of fermenting, which renders the proteid material very digestible. Soy-beans have not yet been introduced into this country, hence there will be little opportunity to use them, and they will, therefore, not be discussed here at length.

LEGUMES

Legumes are the seeds of a certain group of plants grown in pods. The term comes from a very ancient word, "legere," meaning *to gather*. Beans and peas are the most familiar types of this group.

Legumes are rich in nitrogen, and some varieties are also very rich in oil. They are not equal to nuts in fuel or food value, however, because in the natural state they are hard, somewhat indigestible, and

**Legumes rich
in nitrogen**

unpalatable. These qualities are due to the fact that the nitrogenous material of legumes are radically different from the nitrogen found in nuts, and belong to a class not so desirable as food. Meat may be omitted from the diet and legumes adopted as the chief source of nitrogen, but this change requires some knowledge and careful feeding in the beginning. Meat is digested wholly in the stomach and does not require mastication (only enough to be swallowed), while dried or mature legumes require much mastication, owing to the carbohydrates they contain. The best form in which legumes can be taken is in their green or immature state, owing to the fact that the immature starch they contain is readily soluble, while mature legume starch is rather difficult to digest.

FRUITS

The term "fruit" in a strictly botanical sense includes a very wide range of vege-

table articles—the reproductive product of trees, or other plants, such as grains, legumes, nuts, berries, apples, peaches, plums, etc. In this lesson, however, I will apply the popular meaning to the term.

The common succulent or juicy fruits, including both tree fruits and berries,

General com-
position of
fruit

have many properties in common. The chemical composition of these typical fruits consists of from 80 to 85 per cent water, 5 to 15 per cent sugar, 1 to 5 per cent organic or fruit-acids, and small quantities of protein, cellulose, and the numerous salts, a portion of which may be combined with the fruit-acids. Some unripe fruits contain starch and various other carbohydrate substances, many of which are distasteful and unwholesome. On the other hand, when fruits become over-ripe, and decay sets in, the sugar is changed into carbon dioxid, alcohol, and acetic acid, and the fruit rapidly deteriorates in nutritive value and un-

wholesomeness. These changes, together with the loss of water, account for the sponginess and the tastelessness of cold storage and other long-kept fruits. All varieties of fruit are best when they have been allowed to ripen naturally on the trees, but modern commercial conditions demand that fruits for shipping purposes be picked slightly immature, and allowed to ripen in transit to the markets.

The fruit-acids are composed of carbon, hydrogen, and oxygen, and are burned in the body the same as sugar, or fats. The actual energy-producing content of fruit is not large, and depends almost entirely upon the sugar content. The nutrient elements of fruit consist of fruit-sugar, combinations of salts, organic acids, and various flavoring or aromatic substances. These same salts, acids, etc., purchased at the drug store, and administered separately, would be of no particular value, and might produce harm-

**Dietetic value
of fruits**

ful results, but in the various combinations of fruits they have very important places in the diet.

One of the most important functions that fruit performs in the body is that of an artificial solvent, or an

**Fruit as an aid
to digestion**

aid to digestion. To make food serve this purpose well would require some knowledge in regard to chemical harmonies, quantity, etc. To illustrate: If the stomach does not secrete a sufficient quantity of hydrochloric acid, fruit-acid should be absolutely omitted, as any acid, except hydrochloric acid itself, tends to inhibit the formation of the normal stomach acid. And this in turn tends to fermentation of the sugars and starches—causing acid fermentation and all the symptoms that accompany this condition.

So it is very important to prevent all the causes and sources of fermentation if we would prevent the development of all the various diseases that arise from

acid conditions of the stomach, and auto-intoxication. This explains why people of rheumatic tendency cannot take acid fruit. Citrus fruits, however, and limes, lemons, oranges, grape-fruit, etc., are beneficial in rheumatism and conditions of lowered blood alkalinity, because they are changed to alkalis in the system, and reinforce the blood alkalinity. People of rheumatic tendency, therefore, should confine the diet as nearly as possible to starchless foods, omitting all but the citrus fruits.

In the lesson on "Vieno System of Food Measurement" I give the energy value of various fruits, and also the nitrogen factor. These tables consider fruits in the same light with other foods; that is, as sources of energy and nitrogen. In the table which follows, the more important fruits are grouped according to their total acidity. The *figures* represent the *volume* of *acidity*, not strength:

Effect of acid
fruits

Classification
of fruit ac-
cording to
acidity

ACID FRUITS	SUBACID FRUITS	SWEET AND NON-ACID FRUITS
Limes95	Raspberries ...16	Grapes 8
Lemons78	Plums14	Prunes..... 7
Grapefruit ...39	Cherries13	Raisins 6
Cranberries ...37	Peaches12	Bananas 6
Pineapples ...22	Blackberries ..12	Persimmons .. 4
Oranges.....20	Apples11	Figs 4
Apriots18		Pears 3
Strawberries ..18		Dates 3

The fruits in the above table are all reasonably wholesome, and the particular fruits to be used depend as much upon convenience as upon the nature of the food substances. The above groups, however, will be given much attention in dietetic prescriptions, and the food scientist should become thoroughly familiar with this classification.

Of the acid fruits, oranges are the best and most desirable, and cranberries perhaps the least.

Acid fruits are responsible for much stomach and intestinal trouble. Food was prior to life. Animal life on this

globe has been fitted into, and is the net result of food; therefore, in the wonderful adaptations of Nature, it is evident that life will develop higher and better by subsisting upon the food that grows in its respective country.

Acid fruits, such as lemons, limes, grapefruit, pineapples, and oranges, are grown in the tropical and semi-tropical countries, where the climate is warm, and where people subsist largely upon native vegetables. These fruits supply the acids and the fruit-sugars which the system requires in a warm climate.

In the tropics the people live out of doors, the pores of the skin are kept open, and the effete matter produced by acids can be cast out of the body.

In northern countries people live largely indoors, and are heavily clad except during a very short term in midsummer, therefore they do not eliminate freely. They subsist largely upon the heavier foods,

Evils of acid
fruit in north-
ern countries

such as flesh and grains, both of which require a large amount of hydrochloric acid for digestion, hence when the acid of fruits is added to the hydrochloric acid, of which most people have a deficiency, serious acid fermentation may result.

Acid fermentation is the beginning of nearly all stomach trouble, and is the primary cause of many other ills. (See "Fermentation," p. 424.)

Practically all the fruits of the subacid group are excellent; however, on account of the mechanical irritation of the seeds, berries should not be used in cases in which the stomach and the intestines are irritated or catarrhal. In such cases the juice should be pressed from the fruit and the seeds discarded.

Of the non-acid fruits, raisins, figs, and dates are excellent foods from the standpoint of furnishing a large amount of sugar in its very best form. *Very ripe ban-*

Value of sub-
acid fruits

anas and *ripe* persimmons, especially the large Japanese variety, are fruits which have a distinct nature, and are suited to a particular purpose in dietetics.

Value of non-
acid fruits

These pulpy fruits are especially desirable in all cases of digestive irritations and disorders, because of the amount of nourishment contained in them, which is greater than that contained in the juicy fruits. In my practice I seldom, if ever, find a stomach so weak that it cannot digest ripe persimmons and very ripe bananas. I attribute much of my success in treating such cases to the skillful use of these products. The persimmon and the banana as remedial and nutritive articles, are the most valuable fruits grown.

Raisins, prunes, figs, dates, apricots and peaches are common types of fruit preserved by the process of evaporation, and when soaked in clear water may be restored to almost their original con-

Canned and
evaporated
fruits

dition. Evaporated fruit should not be cooked. This is perhaps the most palatable and wholesome method of preserving fruit. Next in purity and importance are the methods of canning, as practised by the housewife. The ordinary commercial preparations of canned fruits, together with the many jams, marmalades and jellies, are generally of doubtful, if not inferior quality. The Pure Food Law has accomplished much to establish honesty in the preserving and the labeling of food, but these products are still far from ideal, and are not to be considered where fresh or evaporated fruits are obtainable.

VEGETABLES

In this group we may conveniently class all food products not elsewhere discussed.

Beans, peas, and corn, when taken in the immature state, are classed as vegetables. The importance of this group

of food products is not their great food value per pound (succulent vegetables contain anywhere from 75 to 95 per cent of water); it is the great variety of nutritive substances which they contain. Lettuce contains cellulose, proteids, active chlorophyl, pentoses, sugars and starches, representing carbohydrates in various processes of transformation; small quantities of fat, and a relatively large per cent of mineral salts, besides numerous flavoring materials. All other edible plants contain many of the same elements in different proportions.

**Composition
of lettuce**

Edible vegetables may be conveniently grouped according to that portion of the plant which we consume. These groups are:

- a Above ground**
- b Roots and tubers**
- c Leafy or succulent**
- d Cucurbita family**

Melons, cantaloups, and tomatoes are on the border line between vegetables and fruits. The following groups of vegetables are made up according to these classifications:

VEGETABLES

(a) *Above Ground*

Beans—
 Dried
 Green
 Beets
 Brussels sprouts
 Cauliflower
 Corn
 Eggplant
 Lentils (dried)
 Okra
 Peas
 Dried
 Green

(c) *Leafy or Succulent
 Vegetables*

Beet-tops
 Cabbage
 Celery
 Dandelion
 Kale
 Lettuce
 Parsley
 Romaine
 Radish-tops
 Spinach
 Turnip-tops
 Watercress

(b) *Roots and Tubers*

Artichokes
 Asparagus
 Carrots
 Onions
 Potatoes—
 Sweet
 White
 Parsnips
 Radishes
 Turnips

(d) *Miscellaneous Vegetables (of the cucurbita family)*

Cantaloup
 Muskmelon
 Pumpkin
 Squash
 Watermelon

Succulent vegetables are very essential in a well-rounded bill of fare, and the neglect of their use is one of the errors in dietetics. The most important function of succulent or leafy vegetables is in the supply of pure water and mineral salts. They give to the body that which cannot be obtained elsewhere.

The diet of the average person is composed of too many solids, especially

of the carbohydrate class. Cereal products compose a very large proportion of the civilized diet, especially in America, yet the starch of cereals is the most difficult of all starches to digest and to assimilate. The water and solvent juices in fresh vegetables and succulent plants are important factors in the digestion and the assimilation of cereal starches. The relative importance of salads and succulent plants in the diet may be graded according to the following table:

Vegetable
juices aid the
digestion of
all food

- | | |
|---------------|---------------|
| 1 Spinach | 7 Celery |
| 2 Turnip-tops | 8 Cabbage |
| 3 Dandelion | 9 Kale |
| 4 Lettuce | 10 Watercress |
| 5 Romaine | 11 Parsley |
| 6 Endive | 12 Beet-tops |

The Irish or white potato is the only true tuber that is used very extensively as an article of food. It is formed chiefly of starch and water. The starch of this

The white
potato

tuber is very coarse and much softer, more soluble, and hence much more digestible than the starch of cereals or legumes. Baking is the best method of preparing the white potato. The skins or peeling should be eaten in order to balance the diet as to cellulose, which is a most important article in the excitation of peristalsis of both the stomach and the intestines.

The sweet potato is a root, and differs chiefly from the Irish potato in that it contains more sugar and less starch. The sweet potato is more wholesome than the Irish variety. Measured by its chemical contents, it is one of the best foods of all the tuber group.

The root vegetables given in the order of my preference are: Carrots, parsnips, turnips and beets. Carrots are exceedingly nutritious and palatable in an uncooked state, eaten with nuts.

Tomatoes may be considered upon the border line between vegetables and fruits. They are exceedingly useful in cases of intestinal congestion and torpidity of the liver.

The watermelon is very wholesome. The water is rich in sugar, while the pulp

The melon is composed of a soft fiber, which is a mild stimulant to

the digestive and the excretory organs. Muskmelons and cantaloups are rich in natural sugar. They are non-acid, hence in harmony with nearly every known article of food. Considering their chemical neutrality and food value, they are about the best articles of diet in the watery or juicy class.

The pumpkin and the squash, which are closely related to the melon, are of the genus cucurbita, and are divided into three species:

1 Pepo or pumpkin

2 Maxima or winter squash

3 Moschata, the pear-shaped squash

With a slight variation of the water content, all of these varieties contain much the same elements of nutrition. However, the pumpkin is most important to the student of dietetics—(1) because of its food value, and (2) because of its prolific and universal growth.

SUGARS AND SIRUPS

It will aid the student greatly in comprehending this subject if he will review the chemical composition of sugars as given in Lesson IV under "Carbohydrates," Vol. I, p. 107.)

Sugar in its various forms is a very prolific food product. It is the principal substance contained in nearly all fruits, but we shall confine our discussion here to the various sugars and sirups as they appear in commerce, freed from the other materials with which they are associated in nature.

BEET-SUGAR

Contrary to common belief, the greatest proportion of the world's supply of sugar comes from the sugar-beet. Sugar, which was once manufactured solely from the maple-sap and the sugar-cane, was discovered about one hundred years ago, to be present in beets. A very interesting historical fact is that the sugar-beet industry owes its origin to the efforts of Napoleon to supply France with home-produced sugar, because of the tariff or embargo laid upon foreign commerce. As a result of this effort all of Central Europe is now a heavy sugar-producing region.

The method of production and the quantity of sugar contained in the sugar-beet have been so greatly improved that the present industry is quite able to compete with the production of sugar from cane in the tropical regions. Crude sugar from sugar-beets is very unpalatable, but

Origin of beet-sugar

the refined or crystallized form of beet sugar is chemically identical with cane-sugar.

Sugar-cane, though not so important as formerly, is still grown very extensively in several of the Southern states—Cuba, Porto Rico, and many semi-tropical countries. The chief distinction between cane-sugar and beet-sugar is that the crude cane-sugar, before it is refined, is a very wholesome and palatable product. The brown sugar of commerce is uncrystallized, or unrefined cane-sugar, and is fully as wholesome, and to most tastes more palatable than the granulated product. It is to be regretted that fashion has decreed we should use white sugar.

Refined sugar, whether produced from beets or cane, is sometimes slightly contaminated with sulfurous acid and indigo, which are used for bleaching purposes, and if present in any quantity are very objectionable.

Maple-sugar, which is made by boiling or evaporating the sap of the sugar-maple, is a product decidedly superior in natural flavor to either beet or cane-sugar. Maple-sugar contains a small proportion of glucose and levulose, but its chief distinction from other sugars is a matter of flavor. The hickory tree contains flavors somewhat similar to the maple. A cheap substitute for maple-sugar has been manufactured by flavoring common sugar with the extract of hickory bark.

The other forms of dry sugar obtainable in the market are milk-sugar and crystallized glucose. The chief use of milk-sugar as an article of diet is in humanizing cow's milk for infant feeding. The dry glucose, or, as it is sometimes called, grape-sugar, is not commonly seen in the market for the reason that it is difficult to crystallize, hence it is much cheaper to market glucose in the form of sirups.

Commercial glucose, as was explained in Lesson IV, is made by treating starch with dilute acids, and its wholesomeness depends entirely upon the care with which this is done. Theoretically, glucose is a very good food. In practise it is somewhat risky because cheap chemicals used in its manufacture may leave harmful and poisonous substances in the finished product. The manufacture of glucose is an excellent illustration of the objections to man-made foods as compared with natural foods. When we eat grapes we know that we are taking one of the most important substances required in the life-processes in a perfectly pure, unadulterated and wholesome form. Science has taught man to manufacture the identical substance that is found in the grape from corn, which is a much cheaper product, but the temptation to economize for the sake of dividends, and to allow the commercial spirit to control in the

The manufac-
ture, composi-
tion and uses
of glucose

manufacture of food products is always present. For this reason the manufactured article comes under suspicion, while the natural form we know to be "exactly as represented." The principal uses of glucose are for table sirups and confectionery. Pure glucose as an article of food lacks flavor; for this reason the usual method of manufacturing sirups is to mix glucose and some other form of sirup or molasses.

The original sources of sirups, besides commercial glucose, are cane-sirup, made directly by evaporating the juice of the sugar-cane; maple-sirup, made from the pure maple-sap; sorghum-sirup, or molasses, from the juice of the sorghum-cane, which is grown extensively in the South and Central West; and last, yet perhaps most common, "New Orleans" molasses, which is the residue from the manufacture of cane-sugar. This may be very wholesome if taken from the first

Sirups and
molasses

drippings of the crystallized sugar, but if taken from sugar refineries it contains chemicals that have been used in the refining and the bleaching processes, and is a very doubtful product. An excellent quality of sirup can be made in the home by adding to the brown sugar a certain quantity of water, and boiling down to the desired consistency.

HONEY

Honey occupies a very unique place, as it is practically the only food substance

Honey, man's
only food from
the insect
world

which man utilizes from the insect world. Honey cannot be strictly compared with milk and eggs as a food product, as the latter are complete foods for the nourishment of young and growing animals, hence must contain all food material necessary to construct the animal body. Honey, which is a carbohydrate, is gath-

ered and used as a food for the adult bee. Pollen, or bee-bread, a nitrogenous substance, is the food of the larvae or young bees. This illustrates a very interesting fact in physiological chemistry. The insect differs radically from higher animals in that its life is divided into three complete stages. When the adult insect, with its wings, emerges from the cocoon or pupa, its growth is complete. Some insects never take any food in the adult stage; but the adult bee takes food, which is practically pure carbohydrates, and which would not maintain the life of a young animal.

Honey is composed chiefly of glucose and levulose, with perhaps 10 per cent of cane-sugar, depending upon the flowers from which it is gathered. Honey is extensively adulterated with glucose, and sometimes with cane-sugar; thus the natural flavors are impaired and the product cheapened.

CONFECTIONS

Under the general term of confections are included all products manufactured for the purpose of appealing chiefly to the sense of taste rather than to serve any special purpose as food. The chief products that enter into confections are the various forms of sugars, chiefly glucose, because of its cheapness; fruits, nut-kernels, flavoring extracts, and coloring materials. Many of the substances used are very wholesome, yet the habit of eating confections as a general rule should be discouraged, if not condemned, the reasons being—

Evil effect of
confections

- 1 That the material from which they are made is usually unknown to the public, and the temptation of manufacturers to use cheap or adulterated material too often controls, therefore quality is sacrificed to profits.

2 Confections are usually eaten without regard to appetite, or the physical need of food.

3 The combination of things from which confections are made shows that they are put together not for their food value, or nutritive virtue, but wholly for the purpose of appealing to an artificial sense of taste, rather than natural appetite. This destroys the appetite for similar products in simpler forms.

The following are the best forms in which sugar can be found, given in the order of their importance:

- 1 Sweet fruits
- 2 Honey
- 3 Sorghum
- 4 Maple-sugar or sirup
- 5 Unrefined cane-sugar
- 6 Refined cane-sugar

Even glucose sirups are perfectly wholesome when free from adulterants. The mixing, fixing, refining and manufacturing all go to make our sugar supply more expensive and less wholesome than the plain fruit-sugars, honey and sorghum.

In order to avoid repetition, all articles containing sugar are referred to throughout this work as *sweets*. By "sweets" I mean sugar, sirups, honey, and all foods containing sugars, such as desserts, soda-fountain drinks, and the limitless number of confections. While carbohydrates rank second in importance in the human diet, yet Nature has made no provision for sugar being taken in its concentrated form. In this form it is the most severe article of human diet, and to its use can be traced the origin of a vast number of stomach, intestinal, and other disorders. Superacidity, fermentation, intestinal gas, and the large number of synpathetic disorders that

Application of
the term
"sweets" as
herein used

follow these conditions are caused largely by the overconsumption of sugars. It would be equally as important for the Federal Government, or the States, to regulate the manufacture and the sale of confections as to regulate the manufacture and the sale of intoxicating liquors.

VEGETABLE OILS

Vegetable oils form too small a portion of the modern bill of fare. Oils of vegetable origin, whether taken in their natural form or pressed out, and used with other foods, are the most valuable nutrients known for the production of heat and energy. By this statement I mean to convey the idea that a given quantity of fat will produce more heat and energy than any other article of human nutrition, and that vegetable fats are more valuable than animal fats, because they are more

Value of vegetable oils

adapted to the fat metabolism of the human body, and less likely to contain harmful substances. Vegetable oils contain a larger per cent of olein, which is considered the most palatable and the most valuable fat known.

The olive is a unique plant, standing along the border line between fruits and

**Olives and
olive-oil**

nuts. Ripe olives contain from 40 to 60 per cent oil, the best quality of which is extracted by cold pressure, the cheaper grades being pressed out at higher temperature. The superiority of olive-oil is due to the fact that it is composed almost wholly of olein; that it contains very little fatty acids and other impurities, and has a mild, sweet, and agreeable flavor.

The adulteration of olive-oil has been extensively practised, but the agitation of pure food, and the demand for same are improving the quality of this excellent article of food.

Cottonseed-oil is the largest vegetable oil industry in America. It is also the cheapest of vegetable oils.

Cottonseed-
oil

The cottonseed-kernel from which the oil is taken is not an edible product. Though used as cattle feed, it contains alkaloid substances which sometimes have a poisonous effect when fed too generously.

The methods of cottonseed-oil manufacture are more complex than those of olive-oil. The oil must be heated and bleached with certain chemical agents, and if designed for salad-oils, frequently a portion of the stearin is removed to make the oil more liquid.

When the cottonseed-oil is carefully manufactured, it is considered to be entirely free from harmful substances. However, as the original material contains poisonous combinations, and as chemical agents are used in refining and bleaching, cottonseed-oil products are open to the same criticism as glucose and refined

sirups; that is, they are wholesome when properly made, but cheap and careless production renders the product undesirable as food. Manufactured under careful Government supervision, cottonseed-oil will, no doubt, be one of the great foods of the future. I recommend the purer brands of cottonseed-oils, when pure olive-oil cannot be obtained or afforded.

Peanut-oil is an excellent food substance which is almost entirely neglected in this country. It contains the best portion of the peanut. Other vegetable oils, valuable as foods, and the use of which is to be recommended, are sesame-oil and sunflower-oil. These products are not produced extensively in this country.

The cocoa-butter is pressed from the beans from which cocoa and chocolate are made. The butter has a flavor similar to these articles. Cocoa-butter should not be con-

fused with cocoanut-butter. These products are very different in origin.

Cocoanut-butter is not extensively used in America as a food product, owing to the fact that the exposed fat globules oxidize very rapidly. It is extensively used in Germany, however, and with the introduction of better methods of preservation, we expect to see cocoanut-butter more generally used in this country, as the source from which it is derived is almost unlimited.

Palm-oil comes from a different species of the palm plant than that which produces the cocoanut. It is a very inexpensive product and one which is chiefly used in the production of soap and candles, although it is perfectly wholesome as a food. Such products have not been utilized in this country as food, because our boundless prairies and corn-fields have made the production of cattle and swine cheap, and our fat

supply has swung toward points of least resistance.

Not all vegetable oils are edible or wholesome. Some contain, in addition to olein, stearin and palmitin, and other fats quite as undesirable. Castor-oil, for example, contains ricinolein, which is a poison, and to which its purgative action is due. Croton-oil is the most powerful laxative known to medicine, owing to the fact that Nature abhors a poison.

Linseed-oil contains large quantities of linolein, which is the substance that oxidizes, forming the stiff, rubbery coat on the surface of linseed-oil when exposed to the air. This makes linseed-oil valuable matter to the painter, but objectionable as a food.

LESSON IX

DRUGS,
STIMULANTS AND NARCOTICS

LESSON IX

DRUGS, STIMULANTS, AND NARCOTICS

With the origin and the use of drugs in the treatment of dis-ease, most people are familiar. The purpose of this lesson, however, is to give brief but accurate information concerning the various chemical elements and compounds termed drugs or medicines.

Many of the medicines in common use are neutral, having no particular effect upon the body, and the effects attributed to them are largely imaginary. Out of the many thousands of chemical materials found in nature, there are, however, certain substances, groups, and compounds which have most marked and violent effect upon all forms of living protoplasm.

The general theory upon which the practise of medicine rests is that certain chemical substances which are not found in the animal body, and which have no natural place therein, have mysterious and beneficial effects; that they possess certain powers, among which are the rebuilding of dis-eased cells, and the purifying of dis-eased blood. This belief arose in a very remote age, when the mind was primitive; when man was ignorant, and controlled almost wholly by superstition—when every natural phenomenon was believed to be the work or whim of some god, and every dis-ease was thought to be the work of some devil.

Modern science has proved all this to be untrue. We know by the selective processes through millions of years of evolution that those chemical substances which work in harmony have become associated so as to form life. We know

Ancient belief
concerning
medicine

Life the result
of chemical
harmony

that life is merely an assemblage of organic matter, very complex and little understood; that it is eternally undergoing chemical changes governed by the natural laws of development and decay. We know that conformity to certain natural laws will produce physical ease, and that violation of these laws will produce dis-ease. We know that ease is what we most desire, therefore the trend of thought, throughout the world, is to realize this desire by turning toward the natural.

True food furnishes the foundation or constructive material upon which all life depends. Nearly all other substances which affect the human body are merely disturbing elements that interfere with the natural chemical processes of life.

To illustrate more fully these general principles, we will take, for example, the chemical changes that may take place in the hemoglobin of the blood. Hemo-

The material
upon which
life depends

globin is a proteid containing iron. It is a complex chemical compound and reacts with other substances very readily. In the lungs it combines with oxygen. In the muscles, this oxyhemoglobin is again received into the original body-substances. This life-giving process is only one of the many thousands selected by evolution from the millions of chemical changes possible in nature.

When carbon monoxid, which is present in illuminating gas, is breathed into the lungs, it combines with hemoglobin, producing a compound which prevents the formation of oxyhemoglobin, thus stopping the process of oxidation in the body, and death is the result.

In proportion as science has shown the origin of life, and the methods by which it has been sustained and developed, the use of drugs as a remedial agent has declined. This line of reasoning followed

Effect of carbon
monoxid upon
the hemoglobin
of the blood

Drug theory
declining

to its logical end, points with unerring certainty to the total abandonment of the drug theory of treating dis-ease except, perhaps, as anesthetics and disinfectants.

The means of combating dis-ease by disinfection is sometimes confused with the general system of drug-ging. The modern methods of preventing and of combating contagious dis-eases by disinfection are in harmony with the best known sanitary laws. These results depend, not upon the ignorant and the harmful theories on which general drug medication was founded, but upon the latest and the most scientific knowledge.

In the recent magazine exposures of patent medicines, the chief trend of argument was that these stock remedies were evil because the user took opium, cocain, or whisky without a doctor's prescription. This standpoint is more

Treatment of
dis-ease by
disinfection

Patent medi-
cines and the
doctor's pre-
scription

amusing than instructive. Just why a poison taken without a doctor's prescription should be dangerous, and its sale a crime, while the sale and the use of the same drug over a doctor's prescription should be highly recommended, is rather difficult to comprehend, and this the enterprising journals have not explained. The exposé that is most needed is not of a few poisonous patent preparations, but of the fundamental folly of interfering with Nature's work by any form of poisoning. Poison is poison whether advertised in a newspaper as a "New Discovery," or prescribed by a reputable representative of the "Ancient Order of Medicine Men."

In a lesson of this kind it is impractical to classify all drugs accurately according to their chemical nature. For convenience of the student, however, the drugs commonly used in medicine will be divided into three groups, which have common representatives, and whose gen-

eral effect upon the human body are well understood. These three groups are:

- a Alkaloids and narcotics
- b Alcohols and related compounds
- c Poisonous mineral salts and acids

a ALKALOIDS AND NARCOTICS

All alkaloids are of vegetable origin. They all contain nitrogen, and in some respects resemble ammonia.

Effect of alkaloids upon the body

Many of the alkaloid compounds are used in medicine.

They affect primarily the nervous system, and may cause freedom from pain, or that abnormal state of exhilaration of which the cocain addict is a typical representative. Substances of this alkaloid group doubtless have useful functions in the plant in which they grew, but in the animal body they are disturbing

factors. Among the most important alkaloids may be mentioned opium, cocaine, nux vomica, and quinin.

OPIUM

Opium is the evaporated sap that flows from incisions made in the unripe capsules of certain Asiatic species of poppy. It contains a large number of chemical compounds which belong to the alkaloid group. The chief alkaloids in opium are codein, narcotin, heroin, and morphin, the most active being heroin. Other alkaloids are of similar composition. The general effects and the uses of the crude opium and the refined morphin may be considered together. The latter, being more concentrated, is used in much smaller quantities.

The effect upon the body of either opium or of morphin is that of benumbing

the nerves and producing sleep. Opium illustrates in a typical manner the progressive stages by which both the body and the mind may become enslaved to the influence of a narcotic. The last stages of the opium or of the morphin slave is probably the lowest state of depravity into which the human being can sink.

Effect of
opium

Opium is eaten or smoked by the Chinese and by other Asiatic races to a very great extent. This habit is considered the worst form of slavery to drugs that is known except cocain. In this country the morphin habit is the more common form. Morphin is either taken internally or is injected beneath the skin by a hypodermic syringe. It is estimated that the great majority of the morphin slaves in this country begin the use of this drug under "their" doctor's prescription.

Origin of the
morphin habit

The use of opium as prescribed by medical men is chiefly for the relief of either pain or of insomnia.

The several
uses of mor-
phin

Its employment in cases of great agony is probably justifiable, but the repeated taking of this drug until the habit is formed becomes a criminal blunder for which the doctor who prescribed it should be held responsible. Unfortunately this is only one of the uses to which opium is put by the medical profession. Prescriptions containing either opium or morphin are frequently given to relieve pain, or to produce sleep, when the primary trouble is chronic, and should be treated by removing the causes, and not alleviated by stupifying the nerves. In the majority of such cases, if the diet is balanced according to age, activity, and climate, and vigorous intestinal peristalsis created, sleep will follow, and other disorders will gradually disappear.

The dangers that lurk in the use of opium are so well known, and the habit has become so unpopular, that tricks are resorted to by manufacturers of this drug to deceive the people into believing that they are using some "harmless" substance, while it is the influence of the opium that gives the medicine its apparent good effect. Patent medicines which claim to kill pain, soothe nerves, and produce sleep, usually contain opium. The popular "Soothing Sirups" for children are nearly all opium products, and have been given to millions of babies in this country by deluded mothers, in the belief that because it soothed, their innocent child was being benefited. These are the crimes of greed passed on to innocent childhood through ignorance.

COCAIN

Cocain is an alkaloid, the use and the influence of which are almost as note-

worthy as that of morphin. Cocain is derived from the leaves of the cocoa plant which grows in the Andes of Peru. Just as the Chinese use opium, so the Peruvian Indians use cocain.

Owing to its hydrochloric-acid salt, the effects of cocain differ somewhat from

Uses and ef-
fects of co-
cain

those of opium. It produces relative freedom from pain, and is used more particularly to produce insensibility in local parts of the body, as in the case of extracting teeth. The cocain slaves, which are increasing alarmingly in this country, usually take it by snuffing, or in an atomizer. The habit is usually acquired, as in the case of morphin, by the prescription of a physician. The patient, learning from experience the freedom from pain and the sense of exhilaration that can be produced by the drug, and not being warned by "his" physician of its baneful effects, continues the habit after the doctor's treatment has ceased, and

awakes to find a monster owning his body and his mind. The cocain fiend, like the opium slave, develops an insatiable desire for the drug, and suffers extreme mental and physical pain when deprived of the usual allowance. The development of untruthfulness and trickery in a person desiring his allowance of a forbidden drug, is one of the marked traits of the narcotic slave.

There are a number of different medicines which depend for their action wholly upon the cocain they contain. A large number of catarrhal powders in the market are diluted forms of cocain, and are used extensively both by those who do not realize the nature of the drug they are using, and by those who know that they are cocain slaves, but prefer to disguise the fact in this manner.

Cocain in
patent
medicines

NUX VOMICA AND STRYCHNIN

Nux vomica is derived from the seeds of a plant that grows in India. **Strychnin** is the alkaloid which exists therein. **Strychnin** is quite different in its effects from the above-mentioned alkaloids, for instead of benumbing the nerves, causing sleep or a pleasing sensation, the effect is a nerve stimulus which causes muscular convulsions.

Effect of
strychnin

The medical use of strychnin is more of a stimulant than of a narcotic. It is one of the most widely used of all the drugs prescribed by the old school physicians, and is extremely dangerous in over-doses. Indeed, thousands of people have been killed by strychnin poisoning.

QUININ

Quinin is derived from Peruvian or cinchona-bark. This bark, like the juice of the poppy plant, contains a number of

alkaloids. These alkaloids, in turn, may react with acids, forming salts.

Sulfate of quinin is the most common form of this drug. Its principal use is for the destruction of the malarial germ, and it is, therefore, the standard drug in all malarious countries. The germs of malaria, however, are not bacteria (microscopic plants, as many suppose), but minute forms of animal life. Aside from this particular use, the effect of quinin is to disturb the nervous system, produce insomnia, ringing of the ears—and even deafness, in a great many cases. It does not, however, produce an addiction, as do morphin, cocain, heroin, and other drugs.

The uses of
quinin

ACETANILID

Acetanilid is one of the coal-tar poisons and is chemically related to anilin. This

drug has come into use only within the past few years, and of all the coal tar group

Composition and effects of acetanilid is one of the most remarkable in its physiological effects. Its influence is to produce at first a deadening effect upon the nervous system, which puts it in the "pain-killer" class. Its continued use destroys the hemoglobin of the blood and produces marked cell-destroying effects throughout the body. Its medical use is for rheumatism, headache, severe coughs, and the like.

A patent medicine now being widely exploited advertises, "We print our formula." So they do, and acetanilid is one of the ingredients. The general public does not know what acetanilid is. The habitu   of this "healthful drug" experiences a craving similar to that of other narcotic drug fiends.

A person who has long used a medicine containing acetanilid shows a bluish-white complexion caused by the de-

struction of red blood-corpuscles. I merely mention this as an example to show that a knowledge of the composition of patent medicines does not protect the public unless the public is made familiar with the ingredients that compose these medicines.

Acetanilid is the active principle in many popular headache powders, the formulas of which are not made public. The use of acetanilid by those claiming to cure suffering, or to relieve it, is one of the most glaring malpractises of the day.

Other coal-tar products chemically related to acetanilid are antipyrin, phenacetin, and various derivatives of benzol and phenol. The general uses of this class of drugs are to reduce fevers and to allay pain. They accomplish this by stupifying the nerves and the nerve fibers, which serve as telegraph wires to inform the brain that something is wrong. This is

Evil effects of
coal-tar pro-
ducts

equivalent to killing the messenger that warns us of our sins.

The following are a few of the toxic remedies used by old school physicians in the treatment of nearly all forms of dis-ease:

Laudanum—which is merely another name for opium

Paregoric—a standard baby medicine which is a tincture of opium with camphor and other drugs

Codein—an alkaloid manufactured from morphin

Lyoscine—the alkaloid of henbane

Atropin—an alkaloid extensively used by oculists. (It is contained with other alkaloids in **BELLADONNA**, which, in turn, is prepared from the plant known as the "Deadly Nightshade")

Hellebore—a powerful alkaloid, is one of the old standard drugs used in the treatment of rheumatic gout

TOBACCO

Tobacco belongs strictly to the narcotic class of drugs. With the possible exception of opium, tobacco is by far the most detrimental narcotic used by man.

The active principle of tobacco is nicotin, which resides in the leaves in combination with malic acid.

Effect of
nicotin

Nicotin is an alkaloid, and one of the most deadly poisons known. In distilled form, nicotin, even in minute quantities, produces death almost instantaneously. The nicotin contained in a pound of tobacco is sufficient to kill several hundred men if administered in the form of pure nicotin, but in smoking and chewing tobacco only a small amount of this poison is absorbed into the body at one time, and, owing to the gradual growth of the tobacco habit, the system has time to partly adjust itself to the use of this powerful drug, enough at least to prevent acute narcotic poisoning.

The violent sickness caused by the first use of tobacco evidences the poisonous effects of the nicotin upon a body not accustomed to its use.

Tobacco as a narcotic is not as drastic in its effect as opium, morphin, and cocaine; for this reason its use is not so generally condemned. Popular opinion, however, is now rapidly recognizing that all of these substances belong in the same general class and are deteriorating factors in human development. The rapid spread of the cigarette habit among young boys has done much to arouse popular agitation against the tobacco evil.

From the standpoint of health, nothing can be said in favor of the use of tobacco in any form, as it gradually deadens the sensitiveness and control of the nervous system. It preys with great violence upon the optic nerves, and more than any other drug known dethrones sexual vitality. The tobacco heart, which is readily

General ef-
fect of tobacco

recognized by medical practitioners, shows the effect of this narcotic upon the nervous system. The craving for tobacco is closely related to the craving for intoxicating liquors and for highly seasoned food—three of the most potent factors in perverting the true sense of taste and arousing abnormal cravings which destroy natural hunger.

Neither tobacco nor nicotine are now used by medical practitioners. Tobacco was formerly used as a purgative, and also as a poultice to relieve swellings and inflammation.

COFFEE

Coffee is one of the most extensively used articles in the narcotic group. The alkaloid which gives coffee its characteristic properties is caffeine. Coffee also con-

Composition
of coffee

tains from three to four per cent of tannic acid. Other substances in coffee, to which the pleasant odors and taste are due, are various forms of fats and carbohydrates, but these exist in such small quantities as to be negligible food elements. The effect of the caffeine is that of a nervous stimulant, increasing the general nervous and mental activity. Coffee is frequently used to keep people awake. It is given as an antidote for opium poisoning because it stimulates the nervous system and prevents sleep.

**Effects of
coffee-
drinking**

Coffee, when used habitually, produces various forms of dyspepsia, especially hypersecretion of hydrochloric acid, tannic acid being the provoking factor. The effect of coffee upon the nervous system is that of continued stimulation or excitation. Its continued use overworks and wears out the nervous system, thus causing a deterioration of both body and mind. If caffeine were taken in a highly

concentrated form, it would result in a narcotic habit quite as enslaving as the use of opium or cocain.

TEA

Tea, in its chemical composition, is similar to coffee, containing even a greater percentage of the alkaloid

Composition
of tea

caffein, and also a larger percentage of tannic acid.

Tannic acid is present in larger quantities in green tea than in the black variety. In addition to the evil effects caused by the caffein which it contains, tea is more destructive to the normal activities of the stomach because of the tannic acid. The student may get some idea of what the stomach of the tea-user has to contend with, when it is stated that tannic acid gets its name from the essential action that this substance has in the process of tanning leather.

COCOA AND CHOCOLATE

The cocoa bean, which was mentioned as the source of chocolate and cocoa-butter, is also the source of the beverage known as breakfast cocoa. The cocoa bean contains caffein, though the per cent is considerably less than in coffee or tea. Cocoa is practically free from tannic acid. For these reasons, and because of its food value, it is decidedly the least harmful of the stimulant beverages. Cocoa, though being in reality more tasteful and nutritious than either coffee or tea, is less used because it lacks the stimulating effect.

The various alkaloid poisons thus far discussed form but an infinitesimal part of the great group of articles used by old school physicians in the treatment of dis-ease, and by civilized people as stimulating and sedative beverages.

b ALCOHOLS AND RELATED COMPOUNDS

The second group of drugs which is associated with alcohol includes the ethers, chloroform, and coal-tar products. This group is also wholly of plant origin, alcohol being distilled from plant products, and coal-tar being formed from petrified plants. These drugs always contain the three elements carbon, hydrogen, and oxygen; some contain an additional element which gives them their peculiar property; for example, chloroform contains chlorin.

Coal-tar is the most wonderful source of drugs known. The distillation of this substance produces coloring matter, preservatives, poisons, and "pain killers" ad infinitum.

ALCCHOL

The uses and the effects of alcohol will not be discussed at length in this

lesson because the subject of alcohol is constantly before the public, and its evil effects universally known and acknowledged. However, I deem it well to examine a phase of the question which is not so well understood.

Whether or not alcohol is a food has recently been discussed by a wide range of writers. The answer of

Alcohol a
poison, not a
food

science is that alcohol is a food in the sense that it can produce heat in the body. Even if alcohol were a true food, the heat is produced, however, by the increased circulation of the blood, which is Nature's warfare against a poison, and in the reaction the vitality of the body is lowered. Thus the true effect of the poison is made manifest. Starvation is not the danger that threatens mankind, but OVERFEEDING and WRONG feeding. Were we in danger of starvation, whisky at one dollar a quart would not save us. The very fact that alcohol produces heat

in the body, whether we call it a food or not, only adds another reason why it should not be used. It produces heat by stimulating heart action; rapid heart action is Nature's defense against the intruding poison.

Alcohol taken in addition to food, and in connection with it, produces surplus heat, and overstimulates metabolism, which is very harmful. It also adds one more to the long list of detrimental effects traceable to intoxicating beverages. Alcohol is a food in the same sense that dynamite is a fuel. Dynamite produces heat, but it would be an unwise fireman who would use it under his boiler.

Another point regarding the use of alcohol that is worthy of consideration, is the fact that improper nutrition, together with the over-ingestion of stimulating and heating foods such as meat and condiments, invariably increase the appetite for intoxicants. The appetite for

Correct eating
the best treat-
ment for the
drink-habit

alcohol seldom, if ever, develops in a perfectly nourished body, and the best treatment known for the drink-habit is a careful course of balanced dieting and hygienic methods of living. Alcohol is purely a stimulant. It increases the heart action, the circulation, the production of heat, and the general vital activities. It is an offense to Nature, and the body calls into activity all her powers to cast out the poison. When the influence of alcohol has run its course, there is a reaction or stupor which calls for more of the same drug. This indulgence cultivates the desire through both the body-functions and the appetite, and the blighting habit dethrones the reason, thus rendering useless the lives of millions of worthy people.

The prescribing of alcohol by physicians has chiefly descended from the ancient idea that alcohol was strengthening and beneficial to the body. The practise is

Why alcohol
is used in
patent
medicines

being discontinued by many reputable physicians, which proves that no great benefits, in dis-ease, can be derived from its use. The regular use of alcohol in small doses gives the patient the feeling of physical exhilaration, and is therefore an excellent means of making him believe that he is being benefited. For this reason, and because of its cheapness, low grade alcohol is the chief component of many medicines.

The following table gives the percentage of alcohol contained in a few patent medicines, previous to the popular exposé of the subject. (I do not vouch for the accuracy of this table at the present time, as the manufacturers under the pressure of public opinion may have changed their formulas):

Peruna	28%
Hostetter's Bitters	44%
Lydia Pinkham's Compound	20%
Hood's Sarsaparilla	18%
Ayer's Sarsaparilla	26%
Paine's Celery Compound	21%

Within the past few years these facts have been made public, resulting in a heavy decline in the sale of these concoctions. The number of good temperance people who have been innocently under the influence of alcohol for a goodly portion of their days can only be vaguely estimated.

CHLOROFORM, ETHER, AND CHLORAL

These drugs are chemically related to alcohol, and are typical anesthetics, which mean that they produce temporary relief from pain when the vapors are inhaled. They are chiefly used in surgical operations, which is justified providing the operation is justified. One death in three thousand occurs from the administration of chloroform, and one in thirteen thousand from the administration of ether. These products have been used to some extent in patent medicines, particularly in con-

Uses of chloro-
form, ether
and chloral

sumptive cures, where they have been given with the idea of relieving the cough.

POISONOUS MINERAL SALTS AND ACIDS

The mineral acids and salts of certain metals, especially of mercury, lead, and copper, are powerful poisons. Patent medicines are frequently labeled "Pure vegetable compounds." This statement may be true, but it is deceptive because they are equally as poisonous as the coal-tar products which have become so popular. They are life-destroying in their final effects upon the human body.

MERCURY

The metal mercury or quicksilver is used very extensively as a medicine, chiefly in compounds of mercurial salts. All salts of mercury are extremely poisonous. Calomel (mercuric chlorid)

Uses of mer-
cury and mer-
curial salts

is a standard allopathic medicine. Mercuric bichlorid or corrosive sublimate is more destructive to protoplasm, and is used as a germicide or disinfectant. The poisonous action of mercurial salts is probably due to the combination of mercury with the protoplasm of the body-cells. When mercurial compounds are taken in poisonous doses, the antidote is the white of egg with which the mercury combines in the stomach, thus sparing the human protoplasm. The mercurial salts, when given in small doses, produce very remarkable physiological disturbances, sometimes even loosening of teeth. Because of their violent physiological action, these drugs are generally to be condemned.

POTASSIUM IODID

Potassium iodid has a very destructive effect upon the natural functions of the

body, and for this reason it has been associated with mercury in the treatment of syphilis, the usual method being to alternate between potassium iodid and mercurial salts.

LEAD AND COPPER

The salts of lead and copper, like those of mercury, are poisonous. However, these salts are not extensively used in medicines. The mineral acids, such as sulfuric, are recognized poisons, but their destructive effects upon the living tissue are so apparent and so painful that they have never gained favor with physicians.

PURGATIVES AND CATHARTICS

The popular term "salts" includes sodium sulfate (Glauber's salt), and magnesium sulfate (Epsom salts).

Effect of
salts

These salts cause a large amount of watery mucus to be excreted from the mucous membrane

of the intestines, the physiological purpose of which is to wash the offending substances from the body, thus producing a laxative effect. Were the large doses usually taken of these salts absorbed into the blood, death would ensue within a few hours.

The number of products that are used for the purpose of relieving constipation is almost unlimited. Many poisons which react directly upon the mucous membrane of the alimentary canal have a laxative effect.

Laxative drugs do not act on the body—the body acts on the drug because it abhors a poison, and, in throwing out the drug, the food residues of the digestive tract are also thrown out, regardless of whether digestion is complete or not. The rapid loss of vitality and weight while taking physic is caused by this fact.

In this lesson I have examined only a few of the many thousand drugs in

Why laxatives
cause loss of
vitality

general use. I have omitted many drugs and compounds whose properties and uses would form interesting information, but the purpose of this book is to impart a knowledge of foods, not a knowledge of drugs. This lesson, however, is for the purpose of giving the reader some authentic information about the standard drugs and medicines, so that he may form his own conclusions in regard to the efficacy of drugs in curing disease. If the reader will secure at a public library a copy of the "National Standard Dispensatory," the book used by practising druggists, and scan through its two thousand pages, he can form some idea of the limitless number of things, and the complex, uncertain, and unscientific methods used in the prescribing and in the dispensing of drugs.

Object of this
lesson

LESSON X

IMPORTANCE OF CORRECT DIAGNOSIS

AND

CORRECT TREATMENT

LESSON X

IMPORTANCE OF CORRECT DIAGNOSIS AND CORRECT TREATMENT

The word "diagnosis" is derived from two Greek words, "dia," meaning *through*, and "gnosis," meaning *knowing*. It therefore means literally "through knowledge," "to know thoroughly," or, as we now say, "thorough knowledge." The old form of the word is still retained in the very common expression "to know it through and through."

The primary purpose of diagnosis is to locate a difficulty, to find an internal disorder that is causing unpleasant symptoms. It will readily be granted that this is only desirable when, after the internal disorder has been located, we are able

Diagnosis may
be a source of
danger

to do something to correct it; that otherwise it is of no more importance than to learn by post-mortem examination what caused death. Indeed, to know what the trouble is without knowing how to deal with it, is a very grave source of danger, and has caused many a death through resort to wrong methods. In a large percentage of cases Nature will heal, if her processes are not interfered with, and in all cases she is the real physician; our only proper office is to supply the right materials, and to leave her to use them as she will.

Correct diagnosis is important because it is the guide—the beginning—the pri-

mary step in the treatment of dis-ease. Wrong diagnosis is usually followed by wrong methods of treatment, while correct diagnosis simplifies, and points the practitioner, with certainty, to the interpretation of Nature's language (symptoms). With an understanding of these,

True diagnosis,
merely an in-
terpretation of
Nature's lan-
guage

the remedy, in most cases, will suggest itself.

The linotype machine that set the matter you are now reading is composed

The human of several thousand parts.

body and the The keyboard is operated

linotype ma-
chine compared by the compositor, in much

the same manner as that of a typewriter, and the delicate mechanism produces the metal lines of type ready to be "made up" in "forms" for the press. Where several such machines are in use, an expert machinist is usually employed to keep them in order. He can take them apart, study the mechanism at leisure, and reassemble them, yet it not infrequently happens that almost insurmountable difficulties are encountered. What would be the difficulties, then, if the machine were enclosed in a case that could not be opened, with only the keyboard exposed? What mechanical engineer in all the world could then make it work if something went wrong? One who

could tell from the faulty action just what the matter was, and correct it from without, would be looked upon as a wizard.

The human body is incomparably more complex and delicate than any machine,

yet it is a widespread superstition that one skilled in the art of locating disorders (diagnosis) can, almost invariably, correct them by the magical effect of drug applications. This is a superstition with no more foundation in fact than the parallel one that a man of vicious character can be made virtuous by a magical process. He may turn from vice to virtue in a moment, but he can become spiritually strong and wholesome only by growth, and by conformity to the moral law. In like manner bodily health comes not by magic, but by right living, by conformity to the laws of health.

It is literally true that "the only perfectly performed functions of the body

are the involuntary or the automatic functions." Those that are even partly under

Involuntary functions are perfectly performed the control of the will, such as breathing, are almost invariably ill done. The infinite wisdom is strikingly exemplified in the fact that the vital functions are quite independent of our volition except for "hindrances or ruinous urgency." We may, and we do hinder them constantly, and we subject them to "ruinous urgency" almost continuously. These two facts are responsible for nearly all the bodily ills from which we suffer.

The marvelous metabolism by which energy is translated into life, by Nature's **Nature's marvelous methods beyond our comprehension** processes, is not only beyond our control, but beyond our comprehension. We should make it an invariable rule, therefore, never to interfere in any way, but to confine our efforts to the task of supplying Nature with material with which to do her wonderful work, and to an observ-

ance of the common laws of health and life.

The blood-corpuscles are like millions or tens of millions of little workmen in the body, each with a particular work to do; each on duty and quickly responsive to call every moment. When we recognize the fact that the body is constantly being broken down and rebuilt; that every atom of broken-down material must be floated away in the blood, and new atoms built in to keep the structure from deterioration; that all the broken-down material is poisonous, and must be eliminated from the body without delay, we realize that the internal activities are almost bewildering. When we consider that all the blood in the body passes through the heart every two or three minutes, carrying food to every cell, and at the same time carrying away the poisonous products of physical and mental activities, disposing of them by various

The blood-
corpuscles
like little
workmen

processes; when we remember that the supply to every cell is delicately adjusted to constantly varying requirements; that all this goes on so quietly and so smoothly that we are unconscious of it—when we remember all this, we begin to have some appreciation of the Psalmist's exclamation, "I am fearfully and wonderfully made."

How faithful these little workmen are! Not for an instant do they leave their tasks. Verily, they are the sentinels forever at the portals. In our work, in our pleasures, they are ever active; in our sleep, they sleep not. Not for an instant do they cease watch. Is there a wound—be it a great rent or a tiny pin-prick, they are there in force to repair it, to wall up the breach and to make it whole—swarming to the rent as the Lowlanders to a break in the dike. Has a foreign substance penetrated the structure?—instantly they set about to expel it; but if this be impossible, they seal it in a capsule of impervious integument

that it may do no harm, or, the least possible injury.

If these little workmen are not conscious as we know consciousness, at least

A seeming consciousness in the automatic action of the blood

their work shows purposeful action, and when we see an obvious purpose definitely carried out by every available agency, we may be sure there is a consciousness back of it, whether it be like ours or not.

But while these workmen are faithful—while they will stand to their tasks to the end, they are limited in their power, and will break ranks under long-continued hindrances.

The human body is a power-plant, a combined engine and boiler, and there

The human body a power-plant

is a close analogy between this conscious, self-acting power-plant and the one that furnishes the power to generate electricity, or to turn the wheels of a factory.

When your electric lights grow dim, and the defect is not cured by renewing the lamps, then you are convinced that the trouble is elsewhere. If the lights in every part of the house are dim, you will know (if you are a skilful electrician—a good diagnostician) that the trouble is not in the electric nervous system of the house. It may be between your house and the electric station, but before taking the trouble to examine the line, ask those of your neighbors who are on a different line, whether their lights are dim. If they are, you may go to the electric station with reasonable certainty of finding the cause.

Suppose we have come to the station and are commissioned to locate the difficulty. We go into the engine room and find everything in good order. The engine is a fine piece of mechanism; it has no loose joints, no leaky valves,

Symptoms
compared
with electric
lights

The stomach
and the lungs
of this levi-
athan

yet it seems to lack power; is overloaded. Inquiry shows there are no more lights than formerly, while the service was satisfactory. You go at once to the boiler room. It may also be in good order so far as appearances go, but you look at the steam gage and find the pressure is low. "Yes," says the fireman, "I simply can't keep the pressure up. I shovel in coal and keep the drafts on so that I have a roaring fire, but, in spite of all, my steam pressure runs down." Look into the furnace (the stomach) of this leviathan! If the grate-bars are clean; if there is no accumulation of ashes, cinders, or clinkers to interfere with the combustion (digestion) of the black provender fed to it, you may close the furnace door and open another. Look into the fire tubes (the lungs) of the laboring monster that has shown signs of weakness! If the fire tubes are clean, free from soot and dust, the trouble is not there.

We have now gone almost the full course; there is but one place left to

“Scale,” like explore, and that is closed.
 an irritated The trouble is inside the
 mucous lining boiler. It is lined with scale

deposited from the water evaporated in producing steam. This scale, which may be likened unto an irritated mucous lining of the stomach, or the intestines, forms a coating upon the lower inside of the boiler, and the upper side of the fire tubes, just as it is deposited on the bottom of a teakettle, and it shuts out the heat from the water. The heat being the source of energy, and the steam only the means of applying it, the power-plant is crippled. Seldom does it happen that so great a thickness of scale is to be found in a boiler as may be seen in almost every

“Scale,” the household teakettle, yet the
 cause of dim effects (symptoms) are found
 light in the dimmed lights miles
 away, and if the difficulty is not
 dealt with, it will rapidly increase

until the service becomes intolerably inefficient.

Had we found the grate-bars choked with ashes, cinders, and clinkers, and the fire tubes (lungs) smothered with soot and dust, we should have instructed the fireman to keep them clean and free. This is not a difficult thing to do, requiring only careful daily attention, but the scale inside the boiler is not so easily dealt with. It is completely enclosed, and there is no possibility of getting at it except by extinguishing the fire and letting the boiler cool—by making the boiler “dead,” or “killing” it, as firemen term it.

Having diagnosed this case of the lighting system, starting with the symptoms of a dim light in a residence some miles away, and having located the difficulty inside of the boiler of the power-plant, we desire to treat it. The boiler can be “killed,” and the scales removed by going

Difficulty in
dealing with
the “scale”

Treating the
“dim light”
dis-ease

into the boiler. It can then be revived by refilling it with water and rekindling the fire.

Then, too, let us assume that there are two boilers, and that we can keep the plant alive with one; a low ebb of life, to be sure, but not dead. We will then cool one boiler at a time, go into it, and remove the scale, thus restoring the plant to full efficiency.

This method can be used where the boiler may be cooled, but as this cannot be done with the human power-plant, for the sake of our analogy, let us suppose that the steam boiler, like the human body, must always be kept under pressure that it cannot be "killed" and revived. What, then, shall be done?

It is evident that the first thing to do is to cease the use of water containing the solution of mineral, which

Removing the
cause of the
scaly deposit

causes the scaly deposit. This will prevent the condition from growing gradually worse, and

may be accomplished by distilling the water before introducing it into the boiler, or, by using rain-water. As to the scale already in the boiler, it must be dissolved, and gradually eliminated, or remain there. There are many so-called "boiler compounds" for the purpose, and every well-informed man in charge of such a "plant" knows how important it is to avoid using a compound that may cause damage to the boiler itself. A "compound" that would attack the steel, as well as the scale, would be a desperate remedy indeed.

In the human body something happens very similar to the deposit of scale in a steam boiler. But the human body is a furnace as well as an engine. It is so intricate and so delicate that if the temperature rises or falls one degree above or below normal, the condition is one of dis-ease. As food is its fuel, how can we expect the mechanism to remain in order

One degree of
variation in tem-
perature indi-
cates dis-ease

if we utterly disregard the body's requirements, not only as to the character of the fuel supplied, but also as to the quantity, especially if we so choke it with fuel that Nature is unable to burn it up in the vital processes, and to dispose of the resulting ashes and cinders? Nature is resourceful—full of expedients and makeshifts! If she were not, the span of life would be much shorter than it is. As previously stated, she will seal up a foreign substance that cannot be expelled, and not only will she do this with solids that have penetrated the flesh, but she

The marvelous economy of Nature will actually build "catch basins" in the body, called cysts—bags, somewhat like a bladder, in which the excess or refuse that cannot be eliminated may be impounded, and the ruin of the body postponed for months or even for years.

The true office of diagnosis is not only to find the disorder, but to discover also the conditions that lead to it, or

have a bearing upon it; hence that diagnosis is faulty which comes short

True diagnosis of this, for the reason
 locates a dis- that even if the disorder
 order; also
 the causes be located and overcome,
 it will recur if its cause persists, just
 as the scale in the boiler will form
 again if the causes that produced it are
 not removed.

As the blood is the life, as it brings to every cell life (nourishment), and carries away death (poisonous by-products of vital activities in the form of dead matter to be eliminated from the body); as it does this by its marvelously rapid circulation through every cell, it is obvious that every part of the body will be in a state of health if the blood itself is pure, and its supply and circulation such that every cell is abundantly fed. The supreme law of health, therefore, may be expressed in two statements, one positive and one negative:

1 Feed the body correctly

2 Do not interfere with the circulation of the blood

If the blood is not a perfect building material it is because we have not put into the digestive mill the right materials; and if it is not properly circulated, it is because the circulation is impeded by positive constrictions, or, as is more frequently the case, because the composition of the blood is not perfectly suited to the demands of the vital activities. As a result, much of the material must be rejected as unusable, thus involving a great deal of extra work in disposing of it. If the excessive material is wholesome, though not at present usable, it may be packed away for future use as fat, this being the easiest, and perhaps the only possible way of disposing of it in the rush. The builders are not

Both the storing of fat and the disposing of waste are expensive processes

only overworked, but literally overwhelmed with excessive and unsuitable materials—and why?—that we may indulge perverted appetites.

Even the excessive material packed away in the wholesome form of fat may, merely by its bulk, become an impediment to the circulation. It not only reduces the efficiency of the bodily mechanism, but also is so potent a factor in shortening life that a corpulent person is likely to be rejected by an insurance company, even though his present state of health may be good.

A condition often found illustrates most forcibly the manner in which defective circulation reduces the efficiency of the human power-plant, even as the scaly deposit impairs the efficiency of the steam boiler. "That tired feeling" of which so many complain, is so called because the person thus afflicted has a

sense of painful exhaustion upon slight exertion—is tired all the time. If our diagnosis shows a state of chronic exhaustion, and we endeavor to increase the body-efficiency by increasing the food, we shall make the same mistake as the fireman who shovels more coal under a scaly boiler.

Painful exhaustion in a perfectly healthy body results from violent, or too

Exhaustion, the accumula- tion of body- poisons	long-continued exercise of a muscle, and if there are no intervals of rest, excruciating pain results. The cells are broken down more rapidly than the resulting waste can be carried away by the circulation, hence the body-poisons and pain. The pain is a symptom, and where the condition of which it is the index is temporary, rest soon restores the normal condition of ease.
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There would be no sense of exhaustion if the building and the eliminating processes could be carried on with sufficient

rapidity concurrently to make good all the expenditures of mental and bodily activities. Not only should

Rest is imperative we not need rest, but we should not even need sleep.

The only occasion to stop, then, would be to take in more fuel (food), and if this could be taken while the body is in action, as fuel is fed to the steam boiler, there would be no necessity to stop. But apparently both the upbuilding and the elimination of waste normally lay behind the demands of even ordinary activity, so that a given muscle must have very frequent intervals of rest (every few seconds), and the organism, as a whole, must reduce activity to the minimum by sleep about one-third of the time.

As some of the muscles are used with practical continuity during the waking life, Nature resorts to some

Nature's devices to provide rest very cunning devices to provide the necessary rest. The tension upon the muscle of the eye is

relaxed for an instant in the unconscious act of winking, but by reason of the persistence of visual sensation, this does not interfere with vision. Thus Nature has always used the principle involved in the moving picture. The heart must perform its work every instant, from the time before we are born until the end, but each muscle rests about one-third of every second—when it relaxes, and the chamber of the heart expands with the inrush of blood.

Nature alone is the builder, and will do all that should be done if she only has the proper materials in proper proportions. We may well stand in awe and admiration of her mysterious atomic masonry, but let us lay no sacrilegious hand upon her work.

LESSON XI

COMMON DISORDERS—THEIR CAUSE AND CURE

LESSON XI

COMMON DISORDERS—THEIR CAUSE AND CURE

HEALTH AND DIS-EASE DEFINED

Health is that condition of the human body in which the functions or activities work together in perfect harmony. Any serious interference with this condition we call dis-ease. Dis-ease, therefore, in its final analysis, is merely the expression of violated natural law.

The harmonious working of the life-processes in the human body depends upon three things—(1) nutrition; (2) motion and (3) oxidation. Nutrition is the principal factor that controls the action of the living cells, for, if the body is kept

Three funda-
mental laws
of life

up to its one hundred per cent of energy it will demand a certain amount of motion or exercise, and this will enforce the proper breathing (oxidation). We can see, therefore, that nutrition is the physical basis of all activities of life.

By nutrition as here used I mean to include all chemical substances that may be supplied for the use of the body-cells, also the sum total of all chemical substances in solution in the circulating fluid or blood-plasma which bathes the body-cells.

The stoppage of the heart beat causes the nutritive fluids of the body to cease circulating. The cells are then no longer supplied with nutritive material, and the poisons which they are constantly throwing off accumulate, cell activity ceases, and the phenomenon we call death ensues. Suffocation acts in a very similar manner—oxygen ceases to be supplied to the blood; carbon dioxid accumulates; the

The phenomenon of death caused by self-poisoning

vital fluids cease to flow, and death is the result.

Dis-ease has been defined to be an absence of harmonious activity in the body. It may result from the inactivity of some particular function. A stomach which secretes no hydrochloric acid is abnormal or dis-eased. Again, a dis-ease may be due to an overdevelopment of some function, because the man whose stomach secretes more hydrochloric acid than digestion requires is as truly dis-eased as is the man whose stomach secretes too little.

Dis-ease may also be defined as partial death, for it is the disturbance or weakening of functions whose complete failure we call death.

Dis-ease is
partial death

Starvation illustrates one side of this process. When nutritive material ceases to be supplied, the cells have nothing with which to work, causing disturbance of function (dis-ease), and then partial, or complete death. The

man in a desert under a hot sun will starve for water in one-tenth the time that he would starve for solid food. Animals fed on a diet from which all salts

Animals starve
when fed on
salt-free food have been chemically removed will die in a shorter time than will those from

which all food is withheld. This rather interesting fact is due to the rapid utilization of the salts residual in the body during the digestion and the assimilation of the salt-free foods taken. The order in which the withdrawal of nutritive substances will produce starvation is about as follows:

- 1 Aerial oxygen
- 2 Water
- 3 Mineral salts
- 4 Organic nitrogen
- 5 Carbohydrates

Poisoning by drugs is an excellent illustration of dis-ease and death produced

**Examples of
drug poison-
ing** by specific starvation. When a man takes ether, this substance, passing to the brain,

immediately interferes with the function of that organ. Insensibility to pain results. If ether is taken in larger quantities, the functions of the brain may be still further interfered with, and the nervous control of the heart beat will be lost, and death will ensue. When castor-oil is taken into the alimentary canal, the irritating substances therein contained inflame the cells of the mucous membrane, and excite them to abnormal secretion, thus disturbing the harmony of the body-activities, and producing dis-ease.

The examples here referred to are not commonly considered dis-ease, because

**Scientific
definition of
dis-ease** we know the particular or immediate cause of the physical disturbance. Modern

knowledge now shows us that the most

prolific cause of what is commonly known as dis-ease is but the interference with cell activities, either by the deficiency or by the excess of nutritive substances, or by the presence of irritating and disturbing poisons. This condition may be caused by an unbalanced diet containing too much of certain nutritive elements, or too little of others, causing surfeiting on the one hand and starvation on the other.

Health is the normal condition, and in spite of Ingersoll's witticism, it is more

Man still in the "catching than dis-ease." childhood state of development Were it not so, the race would long since have become extinct. With reference to body-health, however, we are still in the childhood stage of development, and the science, therefore, of building man to his highest estate—of lifting his mental, moral, and physical faculties to their highest possible attainment, is worthy the labor of the greatest minds. That

person, then, who enjoys the best health, the keenest mentality and power of perception, the highest physical and emotional organism, is he who can select such articles of food as will supply all the constituent parts of the body most nearly in the right or natural proportions. The science of feeding, upon which this mainly depends, becomes possible only when food is taken in accordance with certain fixed, natural laws. These laws are not complicated—they are simple and easy to comprehend. Nature is constantly endeavoring to aid us in their solution.

Hunger, thirst, and taste are Nature's language Hunger, thirst, taste—all the instincts and natural desires of the body are merely Nature's language. To interpret this language, and to obey the laws it lays down is man's highest duty to himself and to his race.

There are very few true diseases. Nearly all of the abnormal physical expressions given off by the body can

be traced to a few primary causes, and most of these causes can be removed by ascertaining and removing other causes that precede them.

The classification of dis-eases is merely a matter of convenience, and is of no

Classification of dis-ease, a matter of convenience practical importance between the food scientist and the patient. It merely enables the one who has studied these classifications to convey his knowledge or information to the lay mind.

The dis-eases which will most interest the student will be those caused by a lack of nutrition, or by a surfeit of nutrition; that is to say, a form of starvation caused by a lack of certain nutritive elements, and overingestion caused by an excess of certain other nutritive elements.

The only practical method of describing dis-ease is by indicating the organs afflicted and the impairment of their functions. Beginning with the stomach,

in which, as previously stated, originates probably ninety-one per cent of all human disorders, I will first take up the question of the abnormal action of food caused by overeating.

OVEREATING

Fortunately Nature does not demand exactness. She has made wonderful provision for our errors or our lack of precision. If we eat too much now and then she will cast out the excess. If, however, we habitually overeat, she will store away the surplus in the form of useless fat, or she will decompose it; that is, make an effort to volatilize it and cast it out through the pores of the skin. If our diet is unbalanced, Nature has the power to convert one chemical into another—a secret yet unknown to modern science.

While the tendency of Nature is to maintain normality by casting the debris

The resource-
fulness of
Nature

out of the body, she demands that we obey the laws of motion and oxidation. If we do not observe these laws, the debris or matter she cannot use will accumulate, and congestion and constipation will take place. The excess of food thus actually clogs the system and generates in the intestines the poisons which cause auto-intoxication.

THE EFFECTS OF OVEREATING

The effects of overeating are so far-reaching, and so common among civilized people that a volume might be devoted to this habit and the subject not exhausted. Here, however, I will review only that which is of most importance to the student of dietetics, namely, the causes and a few of the effects of overeating.

Overeating is due to three specific causes:

1 Eating several articles of food at the same meal which are incompatible

2 Taking stimulants at meals

3 Eating too many things at the same meal

(1) Incompatible foods:

When foods are eaten together that are incompatible they usually result in superacidity and sometimes cause a gnawing sensation in the stomach.

(2) Stimulants with meals:

When one takes stimulants such as beer, liquor or wine with meals, the stomach-cells secrete a deficient amount of hydrochloric acid, causing food to

leave the stomach too slowly, thereby allowing fermentation to take place and acid conditions to develop.

(8) Too many things at same meal:

Too many things eaten at the same meal may exhaust the digestive juices and cause a condition of subacidity (lack of acid), which is true indigestion, or it may cause just the reverse, too much acid, and therefore produce the same result as in taking stimulants with meals. (See "Causes of Superacidity," item 2, p. 420).

ABNORMAL APPETITE

In nearly all cases of overeating Nature's only weapon with which to defend herself is hydrochloric acid, thus the stomach-cells become over-trained in the secretion of acid, and the constant irritation

The cycle of
cause and
effect

caused by acid fermentation produces abnormal appetite. The desire to satisfy this abnormal craving produces more acid, therefore the cycle of overeating and superacidity is complete.

Standard medical works give about sixty different disorders arising from

Disorders originating in the stomach	what is termed dis-eases of nutrition. These include diabetes, gout, arthritis,
---	--

rheumatism, rickets, scurvy, obesity, emaciation, adiposis dolorosa, and various disorders of the liver, heart, and the circulatory system; also constipation and dozens of disorders under the broad term of autointoxication.

The first step in the practise of scientific eating should be to limit the quantity of food, or, in many cases, to take a complete fast for a brief time.

In the slow stages of human development, Nature seems to have accommodated herself to man's omnivorous habits of eating. She will accept many things

that are wholly unfit for food without apparent harm if the quantity is not too great. On the contrary, the results of the most scientific dieting will be injurious if a quantity be taken in excess of that which the body can use.

SUPERACIDITY

We will first consider superacidity because it is usually the first disorder that appears in consequence of wrong eating. It is commonly known as "sour stomach."

The chief cause of superacidity is a wrong combination of foods; and particularly an excess of starchy foods and sugars. The starch and sugar breaks down under the action of fermentation, and develops lactic acid. This further inhibits—or prevents—the normal secretion of hydrochloric acid, and, as a consequence, the albumen molecule is insuf-

ficiently converted—the transformation of the protein into peptones and proteoses is incomplete.

As with all acid fermentation, gases are produced in the stomach, which give rise to belching and eructations. This fermentation sometimes occasions a feeling as though there were a solid lump in the stomach. This may come on immediately after eating. And then again, it may not come on for two or three hours after the meal—depending entirely upon the activity of the enzymes that are responsible for the fermentation.

HYPERCHLORHYDRIA

Occasionally the hyperacidity is caused by the presence of a superabundance of hydrochloric acid in the stomach. This condition is called hyperchlorhydria, and gives rise to a boring, gnawing sensation in the pit of the stomach, together with an abnormal desire for food.

SUPERACIDITY—THE CAUSE

The chief causes of superacidity are—

- 1 Too great a quantity of food
- 2 Wrong combinations and wrong proportions of food

For instance, a diet consisting of an excess of acid fruits, or sweets and starches, and at the same time an insufficient quantity of other nutrients

3 By poisoning from the use of tea or coffee, liquor, tobacco, and the various stimulating and narcotic drugs used by civilized man

4 An excess of hydrochloric acid

SUPERACIDITY—THE SYMPTOMS

So far as the symptoms are concerned, all the above causes may be considered together, since the ultimate result is the same. The symptoms are named in the order of their various stages or the time acidity has endured:

1 *Irritation of the mucous lining of the stomach, expressed by

a burning sometimes called
"heartburn"

- 2 Abnormal appetite caused by the irritation of too much hydrochloric acid in the irritated cells of the stomach

Many people mistake these symptoms for evidence of good health, until overeating produces nervous indigestion, and sometimes a complete breakdown

- 3 Fevered mouth, and so-called fever-sores on the lips and tongue, both of which are a true mirror of the condition of the stomach

- 4 *A sour fluid rising in the throat from one to two hours after meals

- 5 White coating on the tongue

6 Faintness, emptiness; in the language of the layman a "hollowness and an all-gone caved-in" feeling

*(See "Fermentation—The Symptoms," p. 426)

SUPERACIDITY—THE REMEDY

In all cases of superacidity all fruit, especially that of an acid character, except citrus fruits, should be omitted, and also all sweets except a very limited quantity of maple-sugar and sweet fruits—and these never in conjunction with the meal. Foods containing proteids (nitrogen, albumin and casein), together with fresh green vegetables, should form the principal part of the diet.

It has been the theory with dietitians that those afflicted with hyperchlorhydria (supersecretion of hydrochloric acid) should not take sweets, but should take

~~One acid will not counteract another~~

acids liberally. This is one of the few instances in which medical guesswork seems to have a foundation of fact. For there is no doubt but that the giving of hydrochloric acid, the normal stomach acid, *before* a meal, tends to retard and restrict the development of hydrochloric acid *during* the meal.

It remains true, on the other hand, that the giving of hydrochloric acid after the meal tends always to increase the supply of free and combined hydrochloric acid in the stomach during the process of stomach digestion.

For list of foods to be eaten and omitted in cases of overeating, superacidity, fermentation and gas dilatation, see p. 433. For the importance of water-drinking, see p. 434.

FERMENTATION

Fermentation is the effort of Nature to dispose of or to dissolve things it cannot

use; it is the first step in the process of decay.

FERMENTATION—THE CAUSE

The common causes of fermentation are the same as those of superacidity (see p. 420), the difference being that superacidity originates in the stomach, and is confined chiefly to it, while fermentation may take place throughout the entire intestinal tract. The causes are—

1 Overeating

2 Too much acid fruit

3 An excess of sweets

4 Stimulants of the alkaloid group

5 Overeating of cereal products

FERMENTATION—THE SYMPTOMS

The first evidence of fermentation is a burning sensation in the stomach, almost

Difference between super-acidity and fermentation exactly as in superacidity, the difference being that in cases of fermentation the

symptoms appear later after eating. Superacidity may appear immediately after eating, and the symptoms such as a lump in the stomach, or a sour fluid rising in the throat may also appear within an hour after meals, but fermentation, which produces the same symptoms, does not manifest itself until the acid has acted upon the food, which requires from two to four hours, governed by the time required to digest the different articles of which the meal is composed.

The patient may also experience a fullness; an unpleasant and sometimes painful distention of the bowels.

The gas generated by fermentation sometimes passes along down the intes-

tinal tract into the ascending colon, accumulating at the highest point, which is in the transverse colon. This causes the transverse colon to become very much distended and seriously interferes with the blood flow, both into and out of the heart and the lungs.

Results of
fermentation

(See "Gastritis," p. 447; also "Heart Trouble," p. 569).

In considering the symptoms of fermentation, it might be well to return to the question of causes. The primary cause of nearly all conditions of fermentation, either in the stomach or in the intestinal tract, is overeating, or an unbalanced dietary.

This practise indulged in from day to day causes two specific conditions:

- 1 Fermentation followed by various disorders, usually toxic substances, and catarrh, and ulceration of the stomach

2 Intestinal congestion and physical emaciation

If the stomach and other digestive organs are capable of assimilating this superabundance of food, they force into the tissues an excess which Nature stores up in the form of fat, and if work or activity is not increased, or the food diminished, excessive fat or chronic obesity is the result.

If the first warnings are not observed, and the remedy applied, Nature gives to the disobedient one more impressive signals in the form of nervousness, irritability, abnormal appetite, and sometimes mental depression, which indicates one of the most advanced stages of superacidity.

FERMENTATION—THE REMEDY

The remedy for fermentation is first to eat only such foods as are in chemical harmony, and second to limit the quan-

tity to the actual needs of the body. If the patient is *under* normal weight, all acid fruits should be eliminated, and the diet should be about as follows:

BREAKFAST

Three or four egg whites and one yolk, whipped five or six minutes; add a large spoonful of sugar and one of cream while whipping

A baked white potato or boiled wheat

A tablespoonful of wheat bran

LUNCHEON

One whole egg whipped five minutes; add sugar and cream to taste while whipping, mix with a glass of milk

A large boiled onion

A baked potato, with butter

Two tablespoonfuls of bran

DINNER

Two fresh vegetables—choice of carrots, corn, turnips, peas, beans, or squash

Spinach, or a salad of lettuce and celery

The whites of two or three eggs, whipped; add sugar and cream while whipping

A baked potato

Wheat bran, cooked as a cereal

From two to three glasses of cool water should be drunk at each meal.

It will be noticed that this bill of fare is composed largely of vegetables, which is right in cases of fermentation.

The foods named in the above menus will remove the primary causes of fermentation, which in turn is the most prolific cause of that abnormal mental condition called despondency. Under the most favorable social and financial conditions, when every environment is pleasant and seemingly conducive to the highest degree of pleasure and interest in life, the one afflicted with superacidity and fermentation has been known to destroy himself; all life seems gloomy, all effort useless, and the thought "Why should I desire to live?" enters the mind unbidden, until it often takes tangible shape in some rash act. Possibly within the memory of every individual one of these rash acts can be recalled.

The practitioner should make it a special point to ascertain any adverse or depressed mental conditions of his patient and remove them, if possible, by encouragement, sympathetic counsel and optimistic views, all of which have a splendid psychological effect, and which, in nearly all cases of mental depression, are very important.

As the supersecretion of hydrochloric acid becomes less and less, fermentation will gradually disappear; the patient will at once begin to gain weight; the mental conditions will show an immediate improvement, and every part of the anatomy will share in the general up-building.

GAS DILATATION

So closely related are gas dilatation, fermentation and superacidity that it might be said they all come from common causes, such as excessive eating, over-consumption of sweets, acid fruits,

starches, and the use of tobacco, stimulating beverages and drugs.

GAS DILATATION—THE SYMPTOMS

The symptoms of gas dilatation are practically the same as those given for fermentation, page 426. In addition thereto, however, there is often belching, loss of appetite, a weighty or draggy feeling, and vomiting sometimes an hour or two after meals, or late at night.

Scanty urine and constipation are frequently the results of gas dilatation. In severe cases the stomach drops down below its normal level, causing permanent stomach prolapsus.

To the trained eye, in severe cases, the stomach may be outlined, especially when it is much distended.

For remedy, see "Fermentation," page 428.

See also menus for Gastritis.

IN CASES OF OVEREATING, SUPERACIDITY,
FERMENTATION AND GAS DILATATION

OMIT

All acid fruits
All sweets except sweet
fruits in limited quanti-
ties
Cane-sugar
Condiments
Coffee and tea
Cream
Fatty foods
Gravies
Pastries
Stimulating and intoxicat-
ing beverages
Subacid fruits in extreme
cases
Tobacco
White bread

EAT

Bananas, very ripe
Green salads
Liberal quantity of fresh
green vegetables
Limited quantity of blood-
less meat, such as fish
and white meat of tender
fowl
Limited quantity of coarse
cereals
Limited quantity of eggs
and milk—sweet and sour
Melons
Nuts
Potatoes
Sweet fruits—limited quan-
tity
Wheat bran
Whole wheat, thoroughly
cooked
Whole wheat bread—spar-
ingly

IMPORTANCE OF WATER-DRINKING

The lack of body-moisture is one of the causes of supersecretion of acid, therefore water is of primary importance in removing the causes of the above disorders. It should be drunk freely immediately on rising, and just before retiring. From two to three glasses should also be drunk at each meal, especially in treating severe cases. Copious water-drinking also relieves irritation of the stomach, thus reducing abnormal appetite.

Patients afflicted with superacidity never have natural thirst.

CONSTIPATION**THE CAUSE**

This disorder might be called "civilizatis," so universal has it become among civilized people.

Several conditions may conspire to cause constipation—

- 1 Premature stomach digestion
- 2 Neutralization of the bile by excessive acid
- 3 Eating too much starchy food
- 4 Flesh-eating
- 5 Sedentary habits or lack of proper exercise
- 6 A diet too refined—lacking in roughness, cellulose or “fodder”
- 7 The use of sedatives, stimulants, and narcotics, such as tea, coffee, liquor, tobacco, and drugs, especially of the alkaloid group

While most of these are direct causes, the primary cause, however, goes back to superacidity—premature stomach-digestion.

In cases of superacidity the liver is nearly always more or less inactive. Just why this is so is not definitely known, but in the opinion of the writer it is caused by the neutralization of bile by the excess of acid. Be this as it may, nearly all cases of superacidity are accompanied by intestinal congestion, commonly called constipation, or by intermittent diarrhea and constipation.

CONSTIPATION—THE REMEDY

It is believed by the medical profession, and generally accepted by the public, that certain drugs act upon the alimentary tract with beneficial effect in cases of intestinal congestion. This is untrue. The facts are the intestines act upon the drug. The drug is an offense to Nature, and when it is taken into the stomach and passed on to the intestines,

Laxative
drugs an of-
fense to the
body

the body-fluids are severely drawn upon to neutralize the poison, and to cast it out. The result, therefore, of taking poisons, miscalled "laxatives," is that each time the act is repeated, the liver and the peristaltic muscles are weakened, and rendered more and more abnormal, and less and less able to perform their natural functions.

That system of treatment which has been prescribed for fermentation will,

**Suggestions
for the relief
of constipa-
tion**

in most cases, relieve constipation. The treatment should be varied, however, according to the age and the occupation of the patient, governed by the season of the year, or the foods available at the time of treatment. If diagnosis of the patient reveals the fact that constipation has been caused primarily by overeating, the quantity of food should be reduced, and the articles changed so as to include a generous quantity of cellulose (coarse foods).

The following bill of fare may be given under ordinary conditions:

Immediately on rising, take two or three cups of water, the juice of one or two oranges, or half a pound of grapes, swallowing the seeds and pulp whole, masticating only the skins. Devote from eight to ten minutes to vigorous exercise, especially movements Nos. 3 and 5, as shown in "Exercise and Recreation," Vol. V, pp. 1344 and 1345.

BREAKFAST

Half a cup of coarse wheat bran, cooked ten minutes; serve with thin cream

Whole wheat, boiled five or six hours

One or two very ripe bananas, with either nuts or thin cream

LUNCHEON

One or two fresh vegetables

A "two-minute" egg or a very small portion of fish

A heaping tablespoonful of bran

DINNER

Two of the following vegetables: Corn, carrots, peas, beans, parsnips, turnips, onions
 A baked potato
 Celery, lettuce, or anything green, with nuts
 One egg
 A tablespoonful of wheat bran

From one to two glasses of water should be drunk at each of these meals.

These menus are merely suggestive. They may be varied according to judgment, depending upon the habits and the environments of the patient. Curative feeding for constipation is one of the most important departments of this work, and will receive special consideration in the volume of Menus.

FOODS THAT MAY BE SUBSTITUTED FOR
 ONE ANOTHER

The menus may also be varied by substituting the articles herein given for other things of the same general class.

EXAMPLES:

Dried fruits ..	{	Evaporated peaches
		Evaporated apricots
		Prunes

The above are all in the same general class, and may be substituted for one another.

Sweet fruits ...	{	Dates	—All form another class
		Figs	
		Raisins	

Dairy products and Meats ..	{	Eggs
		Milk
		Fish
		Fowl

These compose the nitrogenous group, and may be substituted for one another.

Vegetables	{	Carrots	—Are in the same group
		Parsnips	
		Turnips	

Legumes	{	Beans	—Are in the same general class
		Peas	
		Lentils	

Cereals	{	Barley	Rice
		Corn	Rye
		Oats	Wheat

Barley, corn, oats, rice, rye and wheat are the six great staples, which grouped are called cereals. They form the carbohydrate class of grains, and may be substituted for one another. In cases of constipation, however, whole wheat and rye are preferable, owing to the large amount of bran they contain.

Edible succu- lent Plants ..	{	Dandelion	—Belong to same class
		Kale	
		Lettuce	
		Parsley	
		Romaine	
		Spinach	
Citrus fruits ..	{	Grapefruit	
		Lemons	
		Limes	
		Oranges	

All citrus-fruits (fruits containing citric acid), so far as their action upon the liver is concerned, have practically the same effects, and substantially the same nutritive value.

Whether or not milk is constipating depends entirely upon how it is taken, and the articles with which it is combined. In small quantities, from one to two glasses at a time, milk is constipating. However, if taken at intervals of fifteen or twenty minutes, a quantity is very soon taken, greater than the hydrochloric acid of the stomach can convert into curd, therefore the surplus quantity becomes rather laxative. In many years' experience I have rarely treated a case of constipation that would not readily yield to milk and to coarse vegetables, or bran, if taken in this way; however, the milk diet should not be given longer than two or three days at one time. After this period adopt the menus herein given, varying them by selecting different articles from the several groups named. When the bowel action has become regular, the milk period should be reduced, and the breadless diet extended

Milk may be
laxative or
constipating

until the milk is entirely withdrawn. (See "Emaciation—The Remedy," p. 482).

Man undoubtedly sprang from anthropoid stock. His original position of loco-

Hernia due to
abdominal
pressure

motion was upon his four feet. The intestines, therefore, rested upon a flexible belly surface, but since he has risen and changed his two front paws into hands, the intestines are inclined, with every step, to sag to the bottom of the abdominal cavity, and are prevented from so doing only by small ligaments attached to the abdominal walls. Hernia or rupture is exceedingly common owing to this downward pressure in the lower part of the abdominal cavity. The position maintained while walking, therefore, is not conducive to the relief of that pressure in the abdomen, which is the direct cause of hernia, and often the cause of very stubborn intestinal congestion.

It is obvious, therefore, that this condition needs remedial exercise. It will be

observed that all the movements given in the lesson on "Exercise and Re-creation"

Remedial and
counteractive
exercises

bring the trunk to a horizontal position with the body leaning forward. All of these movements are designed to counteract this abdominal pressure.

I go thus into detail for the purpose of showing the great necessity of these

Exercise a ne-
cessity in
counteracting
constipation

exercises, especially in cases of constipation, and of insisting that they be executed vigorously and regularly. *The most beneficial diet that could be prescribed will not relieve and cure constipation unless it is supplemented by certain remedial exercises or movements.* This is true because Nature contemplates a certain amount of motion exactly as she contemplates a certain amount of nutrition, and her laws governing motion are just as mandatory and her penalties just as certain.

Nutrition is of more importance because it is more fundamental, and it is

more fundamental because when the body is naturally nourished, there is created

Proper nourishment promotes natural desire for exercise a surplus amount of energy which will compel a certain amount of motion, and this

in turn will cause deep or full breathing. Therefore the well-fed person will take his exercise because he has an appetite for it, or because the superabundance of energy forces him to do it in obedience to the same law that produces hunger. Hence the perfectly nourished body will conform automatically to the other two great physical laws of motion and of oxidation.

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Constipating Foods

All white flour products
Blackberries
Cheese
Chestnuts
Corn-starch
Fine corn-meal
Macaroni
Oatmeal
Red meat
Rice
Spaghetti
Sweet potatoes
White bread

Lazative Foods

All green salads
Apples
Apricots
Beet-tops
Celery
Figs
Peaches
Persimmons
Plums
Prunes
Spinach
Turnips-tops
Wheat bran
Whole wheat

Constipating Beverages

All alcoholic stimulants
Chocolate
Cocoa
Coffee
Cream
Lime-water
Milk (In small quantities)
Tea

Lazative Beverages

Mineral water containing
 magnesia
Unsweetened fruit-juice
Water—lime-free

In cases of constipation:

OMIT	EAT
Baked beans	All fresh vegetables
Chestnuts	Apricots
Cheese	Bananas
Coffee, tea, chocolate	Grapes—seeds, skins and all
Corn products	Nuts
Cream	Peaches
Flesh food of all kinds	Plums
Intoxicants	Prunes
Milk	Succulent plants
Oatmeal	Tomatoes
Rice	Wheat bran
Sweet potato	Whole wheat
Tobacco	Rye
White flour products	

Drink plain water with meals.

GASTRITIS

Gastritis is a word meant to describe a chronic and a painful condition of stomach and of intestinal irritation. When the stomach becomes much irritated from constant fermentation of food, and from the resultant presence of acid,

certain articles such as milk, fruit-acids, and starchy foods will cause rapid accumulation of gas, which becomes exceedingly painful and sometimes dangerous.

The majority of deaths from so-called heart-failure is caused directly by the

Gas, the primary cause of heart trouble

accumulation of gas from the fermenting mass of food in the stomach and in the intestines. These organs become greatly inflated, and their pressure against all the vital organs, and against the arteries leading into and out of the lungs and the heart so impair the circulation that the heart action becomes very irregular—first slow and faint; sometimes skipping a beat, and again violent and palpitating. When the congested blood spurts through into the heart it is called “arterial overflow,” and the old diagnostician seems to have been content with giving this a name. It is certain they have not yet given the world a remedy, as the regular profession is still prescribing such drugs

as bicarbonate of soda, bismuth subnitrate, and nux vomica, none of which can give more than temporary relief, and that is accomplished by neutralizing the acid at the tremendous expense of the cells that secrete it.

GASTRITIS—THE CAUSE

Gastritis is caused:

- 1 By the use of stimulants
- 2 Irritating foods, condiments, etc.
- 3 Overeating, especially of acid fruits, starches and sweets
- 4 Cirrhosis of the liver is sometimes one of the secondary causes of gastritis

GASTRITIS—THE SYMPTOMS

The symptoms are usually a dull pain in the region of the stomach and upper intestines, a swollen full feeling, now and then biting pains, followed by a dark

vomit, especially when the attack comes late at night.

Gastritis is often confused with gastric cancer, and in diagnosis it is difficult to speak with authority as to whether the case is ordinary gastritis, as above described, gastric ulcer, or gastric cancer. The diagnostician in making up his opinion must be governed largely by the time the condition has endured, and the immediate causes, giving especial care to the food and drink that has been consumed just prior to the attack.

GASTRITIS—THE REMEDY

In severe cases the patient should be given a glass of cool water. In fact, one of the best means of allaying the inflammation of gastritis—or as a matter of fact any other inflammation—is cool water.

All food should be omitted for at least twenty-four hours, then the patient should

be given vegetable juice prepared as follows:

Grind spinach, carrots, squash, or turnips, any two or three of these, very fine; cook about ten minutes in enough water to make a pint of thin vegetable soup. Put through a colander; strain through a coarse cloth, discarding the pulp. Give this to the patient every two hours in quantities not more than one or two ounces, dependent upon the condition.

The diet may be varied by changing vegetables, always selecting one green plant such as spinach, lettuce, beet or turnip-tops. As the patient improves more of the pulp may be used. After the second or third day a thin puree may be used, care being exercised not to overfeed.

In milder cases the patient should be fed after the same methods, only more of the vegetable pulp may be used, there-

by increasing the strength of the diet after four or five days; or, when the patient shows signs of substantial recovery, egg whites, baked potatoes, and the ordinary fresh vegetables may be given in moderate quantities.

Inasmuch as stomach fermentation is the beginning or parent cause of gastritis, the causes, symptoms, and menus given for fermentation would apply in cases of gastritis, limiting the quantity of food according to the severity of the condition.

In cases of gastritis:

OMIT (In severe cases)

Coffee
Condiments
Flesh foods
Fruit
Intoxicants
Starchy foods
Sweets
Tea
Tobacco

EAT (In severe cases)

Baked bananas
Egg whites
Lettuce
Puree of tender beans
Puree of tender carrots
Puree of tender corn
Puree of tender peas
Spinach
Squash
Vegetable juices

In the earlier stages of acute gastritis, all foods should be omitted except, perhaps, vegetable juices. (See recipe, p. 451.)

See also Fermentation and Superacidity, pp. 424 and 418.

NERVOUS INDIGESTION

There are millions of nerve fibers leading out from the stomach and alimentary tract to every part of the anatomy, so that the nervous connection, especially between the stomach and the brain, is very direct and sensitive. The stomach seems to bear the same relation to the brain that a basket bears to a balloon so far as their nervous connection is concerned. Thus it is that the irritated stomach produces an irritable temper, insomnia, forgetfulness, and a lack of ability to concentrate the thoughts. These are the milder symptoms or first warnings.

Mental effects
of nervous-
ness

NERVOUS INDIGESTION—THE CAUSE

The use of stimulants or narcotics, such as tea, coffee, liquor and tobacco are most prolific causes of nervousness. These drugs act upon the body in a dual capacity: (1) They excite or raise the nervous system above normal, only to drop it below when the reaction takes place. (2) In addition to this, they irritate the stomach and the intestines by causing superacidity.

Nervousness caused by sedatives and narcotics acts both upon the mental and the physical organism, and the source of such nervousness can be easily traced by ascertaining the habits of the patient.

When the patient has used stimulants and narcotics long enough to cause

Abnormal ap-
petite for
sweets and
starches

nervousness, the mucous membrane of the stomach is usually in a state of irritation. The presence of blood, under these conditions, causes abnormal appetite,

frequently followed by overeating, especially of sweets, starches, and acids, for which the patient usually has a great craving. This is followed by fermentation, and comes into or envelops superacidity and must necessarily be classed with it.

Overeating and the constant use of stimulants and narcotics will, after a time, cause a chronic state of fermentation, and the stomach will seldom be free from acid, the constant presence of which will ultimately cause gastric ulcer, and perhaps stomach carcinoma.

NERVOUS INDIGESTION—THE SYMPTOMS

The more advanced stages of stomach irritation which are expressed by nervousness cause melancholia and a gloomy sort of pessimism. These are among the last signals the stomach gives to the brain

**Nature's final
symptoms**

before final collapse, and if these signals are not heeded, the victim may expect to go down in the maelstrom of nervous prostration within twelve months from the time the first signals are given. These fits or spells of melancholia often come on suddenly. The palms of the hands become moist with a cold, clammy perspiration, and the mind is flooded with a train of thoughts such as "What's the use of living?" "Why all this struggle for mere existence?" The victim of this condition invariably believes that his mind is becoming affected; that he is becoming insane, and will soon be a public charge, and shunned by those whom he loves. While under these spells many people take their own lives rather than face what they believe to be insanity and ostracism.

The patient should be made acquainted with his true condition, and shown that it is only temporary, and that all such thoughts are mere mental aberrations

which will disappear when the causes of stomach irritation are removed.

The above-named symptoms always point with certainty to an irritated stomach, the severity of which can be determined by the symptoms above described.

Stomach irritation is expressed largely through the *mind*, as in irritability, ner-

Difference between stomach and intestinal irritation	vousness and melancholia, while <i>intestinal irritation</i> is generally expressed by some <i>physical symptom</i>, such as restlessness, twitching of the muscles and a general lack of physical tranquillity.
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There is another form of nervousness believed to be caused by overwork, business worries, etc. With these opinions the writer does not agree. If the body is properly fed one is not likely to overwork. Nature will demand rest, and sleep will come while at the desk, or when following the plow.

Investigators are much divided on the question of whether worry causes superacidity, or superacidity causes worry. The experience of the writer in treating several thousand cases of stomach acidity has proved beyond a doubt that acid fermentation and stomach irritation are the primary causes, and what is commonly called "worry" is merely a symptom or result of this condition. It is quite evident, therefore, that all forms of nervousness must go back to the food question for final solution.

Acidity the
cause of worry

NERVOUS INDIGESTION—THE REMEDY

Nervous indigestion should be treated as follows:

- 1 The patient should employ his time in pleasant but useful occupation
- 2 As to diet, *omit* the following:

All red meats
 Acid fruits
 Bread and cereals
 Condiments
 Pickles

Sweets	{	Such as—
		Candies
		Cane or maple-sugar
		Dates and figs
		Desserts and pastries of all kinds
		Sirups

3 The diet should consist of—

An abundance of green salads
 Baked potatoes
 (Including the skins)
 Egg whites
 Fats—limited quantity—

Such as—
 Dairy butter
 Nut butter
 Olive-oil
 Nuts

Fresh vegetables—not canned

Legumes	{	Beans
		Peas
		Lentils

In cases of Nervous Indigestion:

OMIT	EAT
Acid fruits	Baked potatoes
Bread and cereals	Fats (limited quantity)
Coffee and tea	Fresh vegetables
Condiments	Green salads
Desserts and pastries	Legumes
Pickles	Limited quantity of milk (preferably sour)
Red meats	White of eggs
Stimulants of all kinds	
Sweets	
Tobacco	

The experience of the writer for many years has been that *the fewer the articles composing the diet, the better the progress could be made in treating nervous indigestion. In many instances, the mono-diet system (eating only one kind of food at a meal) has been adopted with excellent results.*

SUBACIDITY

Indigestion is a term used to describe the condition caused by food remaining

in the stomach *over* Nature's time-limit. In such cases there is usually a lack of hydrochloric acid. This disorder is sometimes called hyperchlorhydria. The expression of indigestion, which is a lack of acid, and the expression superacidity or hyperchlorhydria, which is too much acid, are often confusing, inasmuch as both conditions cause a feeling of heaviness or a lump in the stomach. (See "Superacidity, p. 419.)

SUBACIDITY—THE CAUSE

The most prolific cause of subacidity is sedentary habits or lack of activity. This is especially true of young people, while in adults, or those who have passed forty, the usual cause is incorrect eating, or an unbalanced diet.

Another cause of subacidity is the overconsumption of flesh foods. Flesh requires considerable acid for dissolution;

sometimes more than is normally supplied by the stomach, and consequently results in indigestion or non-dissolution.

The over-consumption of either starchy foods or sweets may produce the same result. It is therefore obvious that this particular disorder is caused primarily either by overeating or by an unbalanced dietary.

SUBACIDITY—THE SYMPTOMS

1 Brown coating on the tongue—

The *white* coating on the tongue always indicates too much acid, hence predigestion; while the *brown* coating indicates insufficient acid, hence indigestion. The *white* coating shows the action of the acid on the stomach lining, while the *brown* coating shows the decomposition of food matter in the stomach, usually accompanied by an offensive breath.

2 Gas in the stomach—

Gas sometimes appears in the stomach immediately after eating. This shows that food, in a state of fermentation, remains in the stomach from a previous meal. It also shows that the stomach may be prolapsed; that is, dropped down below its normal level. A sort of pocket is thus frequently formed in which a small quantity of food remains from one meal to another, causing an immediate formation of gas after eating.

SUBACIDITY—THE REMEDY

The logical remedy is to limit the amount of food to the actual requirements of the body, and especially to balance the daily bill of fare in conformity to the chemistry of nutrition.

In cases of chronic indigestion or impoverished acid secretions, it often be-

comes necessary to prescribe a counteractive diet, the composition of which should be determined by the cause of the disorder. If the cause be over-consumption of meat, the patient should be given a breakfast of acid fruits, and nuts and salads; while if the cause be over-consumption of starchy foods, all legumes and grain products of every kind should be omitted, and a diet of subacid fruits, an abundance of green salads, and even some flesh now and then, such as tender fish or fowl, should be prescribed.

In all cases the special object should be to prescribe an amount of food for the first few days somewhat below the normal requirements of the body, and after the counteractive diet has been taken for three or four days, the menu should be balanced daily as to nutritive elements. By observance of these rules, together with a reasonable observance of the laws of exercise, fresh air and deep

breathing, the most obstinate cases of indigestion or subacidity can be overcome.

In cases of Subacidity:

OMIT	EAT
Cereals	All acid fruits with meals
Coffee and tea	Buttermilk
Flesh foods	Fish
Liquors	Fresh vegetables
Sweets	Potatoes
Tobacco	Sautern wine, sparingly
White bread	Succulent plants
	Tea
	Tomatoes
	Wheat bran
	Whole wheat

See "Diet in cases of subacidity," p. 464.

BILIOUSNESS

Biliousness is the supersecretion of bile; that is to say, more of this fluid is secreted by the liver than is required for the ordinary processes of digestion, and the excess passes into the stomach.

BILIOUSNESS—THE CAUSE

Biliousness is caused, in a majority of cases, by the overconsumption of fats, milk, eggs, and sweets, or by taking stimulants, especially such as malted or brewed liquors.

BILIOUSNESS—THE SYMPTOMS

The presence of bile in the stomach interferes with the stomach-secretion, thus causing faulty digestion and severe headache, usually starting at the back of the head and ending in a severe pain over the eyes. The complexion becomes sallow and there is a general decline in strength and vitality.

BILIOUSNESS—THE REMEDY

The logical remedy is to remove the above causes by eliminating from the diet such articles as tea, coffee, distilled,

brewed and malted liquors of every character, and sweets, selecting such foods as will give to the body all the elements of nutrition, and so combining them as to furnish these elements in the right proportions.

(See menus for "Constipation," Vol. III, p. 761).

In cases of Biliousness:

OMIT	EAT
Coffee and tea	Bananas
Cream	Coarse cereals
Egg yolks	Egg whites
Fats	Fresh vegetables
Intoxicants	Fruit
Milk	Melons
Sweets	Nuts
Wines and liquors of all kinds	Succulent plants
	Wheat bran

CIRRHOSIS OF THE LIVER

THE CAUSE

Cirrhosis of the liver, or Hanot's Disease, is a condition characterized by de-

generation of the liver cells, usually associated with a fatty infiltration.

While there are many conditions that may cause cirrhosis, the principal one, perhaps, is excessive indulgence in alcohol. Thus the disease is frequently called "hob-nailed liver," "gin-liver," etc.

Cirrhosis of the liver is a disease that is almost invariably fatal in from one to two years—although, if the process is not far advanced, and the cause is removed, the patient may recover tolerable health.

It is absolutely necessary that further irritation of the liver, caused by the drinking of alcohol, be stopped. Close attention should be paid to the catarrhal condition of the stomach and bowels, which is usually associated with cirrhosis. (See chapter on Catarrh.)

CIRRHOSIS OF THE LIVER—THE SYMPTOMS

The symptoms are usually pain in the epigastrium; nausea and sometimes vom-

iting in the morning; general loss of vitality and ambition; sallow complexion. A dull aching or a throbbing pain is often experienced, followed by a heavy, sluggish feeling, especially on rising in the morning. Alternate constipation and diarrhea, and enlargement of the liver are frequent symptoms. In the atrophic variety, however, the liver shrinks in size.

CIRRHOSIS OF THE LIVER— THE TREATMENT

The diet should be nutritious, yet simple, so as to put as little labor as possible upon the already impaired digestion. Fats should be restricted, and starchy foods should be closely limited, so as not to set up additional fermentation.

A liberal service of plain wheat bran should be taken at least twice a week

in order to insure active intestinal peristalsis.

All stimulants, narcotics, sweets, condiments and irritating foods of every character should be omitted. The patient should drink copiously of pure water at meals, omitting all other beverages.

In cases of Cirrhosis of the Liver:

OMIT	EAT
Acid fruits, except the citrus fruits	All legumes
Condiments	Edible succulent plants
Fats	Fresh vegetables
Gravies	Green corn
Red meats	Liberal quantity of wheat bran
Stimulants and narcotics	Limited quantity of—
Sweets	Apples Oranges
White bread	Bananas Peaches
	Grapes Pears
	Grape fruit Plums
	Lemons
	Nuts
	Potatoes
	Salads
	Whole wheat thoroughly cooked

Cirrhosis of the liver is always aggravated by the overconsumption of sweets, starches, fats and intoxicating beverages. Sweet and starchy foods should be limited and intoxicants of all kinds should be entirely omitted. An abundance of pure water should be taken at meals.

PILES OR HEMORRHOIDS

THE CAUSE

Piles or hemorrhoids are usually the result of chronic constipation; or, they may occur from violent exercise, or a shock. The straining at stool when constipated has a most potent influence in causing piles, as well as the passage of hard, dry feces. In both of these cases the rectal mucous surfaces are torn loose or detached from the supporting walls, and the cells fill with blood, thereby becoming very greatly distended.

PILES OR HEMORRHOIDS—THE SYMPTOMS

The first symptoms are usually itching of the mucous membrane of the anus. In the second stage a bloody discharge will appear with the feces, and in the more advanced cases the rectal mucous membrane will protrude.

PILES OR HEMORRHOIDS—THE TREATMENT

When it is first discovered that there is a slight protrusion of the rectal mucous

How to relieve the strain upon the rectal lining membrane from the anus, great care should be taken in evacuation of the feces.

The first or direct cause of this condition is usually congestion; that is, the feces in the rectal cavity forms into a hard mass. When this condition appears, just before each evacuation, inject into the rectum, with a small rectal syringe, a tablespoonful of olive-oil, followed by

a pint or two of lukewarm water, taken as an ordinary enema, and retain two or three minutes. Then place the first and the middle fingers, one on each side of the anus, and press gently so as to relieve the strain upon the rectal lining. The feces, if very hard, can be worked back and forth until broken up, and evacuation made easy. By this means I have known many cases of bleeding piles or hemorrhoids to be permanently cured.

It is exceedingly difficult to cure chronic cases in which the membrane has been torn from the walls for many years. However, Nature never tires of doing her work of repair, and if these suggestions are religiously observed, even chronic cases can be greatly relieved, and sometimes permanently cured.

For diet, see menus for constipation and fermentation.

Every night, just before retiring, take a light enema and retain it over night; also, take an enema just after rising.

DIARRHEA

THE CAUSE

Diarrhea is in reality not a dis-ease, but a symptom behind which there are always primary causes, usually—

- 1 Overeating**
- 2 Irritating condiments**
- 3 Wrong combinations of food at meals**
- 4 Poisonous laxative drugs**
- 5 Excess of acids**
- 6 Excess of sweets**
- 7 Sometimes nervous excitement**

Diarrhea caused by the last-named condition is usually of temporary duration. Sudden attacks of diarrhea are often caused by exposure, by changes of diet, or by the overconsumption of acids in the form of berries.

There is no abnormal condition of the alimentary tract that is more directly traceable to errors in eating and drinking than diarrhea and all forms of dysentery.

Errors in eating the cause of diarrhea

This condition is most generally caused by chronic fermentation, or by the presence of some non-nutritive or foreign substance. It matters not whether this condition comes from the use of poisonous drugs called laxative remedies, or from foods containing foreign or non-nutritive substances, the result is the same.

The habitual taking of drugs sufficiently poisonous to cause the intestinal machinery to exert enough action to cast them out, is a painful and slow process of self-destruction. It frequently happens that the peristaltic muscles become relaxed and give way completely from the habitual use of poisonous cathartics, and chronic diarrhea or dysentery is the result.

DIARRHEA—THE TREATMENT

In ordinary cases of diarrhea one can pursue his usual work provided he observes the suggestions in regard to diet, given below, but in severe cases one should avoid labor or exercise, and remain most of the time in a reclining position. Drink copiously of pure water, and eat very sparingly.

OMIT

Acid fruits
 All green salads
 Coarse foods, such as cabbage, celery, turnips, spinach
 Condiments
 Desserts, pastry, etc.
 Pickles and all foods preserved in acids
 Red meat and flesh food of every kind except very tender fish and white meat of chicken and turkey
 Relishes
 Sweets
 Tuber vegetables except sweet and white potatoes

EAT

Boiled rice (thoroughly cooked)
 Boiled sweet milk
 Cottage cheese
 Ordinary white bread
 Potatoes—
 Sweet (baked)
 White
 Puree of rice
 Sweet clabbered milk, including the cream
 Very tender white meat of chicken, or turkey, or fish

Omit all beverages at meals except plain water, taking only about one glass.

EMACIATION OR UNDERWEIGHT

Underweight, or lack of adipose tissue, is a condition with which the practitioner will often have to deal, as under nearly all abnormal conditions of the body, called dis-ease, the first result or evidence is loss of weight.

The tendency of a perfectly normal body, after it passes the forty-fifth year, is to become muscular, or what is termed "thin." In all countries those who have lived to a very great age have been termed emaciated. However, there is a normal body-weight that can be maintained, and which indicates normal health.

Emaciation is usually followed by general anemia and a weakening of nearly all the functions of the body. The memory, sight, hearing, all become impaired, while

Effects of
emaciation

the taste or appetite usually becomes keener or more sensitive. This is caused by irritation of the mucous membrane of the stomach and the consequent presence of too much blood therein, the same as when intoxicating liquors are taken just before meals.

Overwork, loss of sleep, unbalanced diet, worry, grief, or a period of extreme emotional tension, all have a tendency to disturb and derange the processes of metabolism. Under these conditions the body is very likely to lose weight, but there is always a fundamental cause which should be discovered and removed.

EMACIATION OR UNDERWEIGHT— THE CAUSE

There are a number of things which usually conspire to cause emaciation. Named in the order of their generality, they are as follows:

**Physical
causes of
emaciation**

- 1 Overeating
- 2 Superacidity
- 3 Stomach and intestinal fermentation
- 4 Constipation
- 5 Autointoxication
- 6 Under-drinking of pure water
- 7 The use of tobacco, coffee and tea

All of these things tend to cause mal-assimilation, which is the secondary cause of emaciation. In a majority of cases the loss of weight begins while the body is surfeited with food. In fact, it is nothing uncommon for those suffering most from this condition to consume from three to four times the necessary quantity of food; overeating becomes a habit, and consequent fermentation and toxic sub-

stances, usually known as autointoxication, are the results.

The causes of emaciation, according to most authorities, are impoverished blood and malnutrition. With these opinions the writer fully agrees, but the intelligent reader will naturally inquire—What are the causes of impoverished blood and malnutrition? The answer goes directly back to the food question.

All mental influences, business, social, or financial worry, contribute their share toward physical emaciation,

**Mental causes
of emaciation** but when the body is perfectly nourished it is more capable of withstanding these drains because it is made fearless by perfect health. Behind all forms of business and financial trouble is the demon "fear," and fear rests on the uncertainty of our ability to provide creature comforts and necessities; therefore when we have mastered the science of feeding our bodies, and have learned how simply and cheaply

this may be done, the mere possession of such knowledge does more than all else to make of us philosophers and students, eliminating fear and worry of every kind, as in health the mind is usually in a state of optimism and tranquillity.

EMACIATION OR UNDERWEIGHT—THE SYMPTOMS

The symptoms of emaciation, of course, are so apparent that it is only necessary to say that when the above-named errors are corrected, and the following symptoms are observed, the normal weight can nearly always be maintained.

So-called cold-sores, fevered lips and canker-sores on the tongue, intestinal congestion, torpidity of the liver, slight headaches, fullness after eating, alternate constipation and diarrhea, are all symptoms that point to the causes of emaciation.

EMACIATION OR UNDERWEIGHT—THE REMEDY

Emaciation is sometimes caused by organic or hereditary dis-eases, but the usual causes are to be found within the field of dietetics. The remedy, therefore, is first to naturalize or normalize the diet as to quantity, selection, proportion, and combinations of food.

In the majority of cases, those who come to the food scientist for treatment will be those who have tried every conceivable remedy except the natural one, therefore they come in a chronic state of emaciation, poisoned by overeating. Never having been instructed in regard to diet, exercise, breathing, bathing, or any other hygienic law, they will, in most cases, require a counteractive or remedial diet. There may be a number of supplementary causes to be considered, but the most important things for the practitioner to ascertain are:

- 1 Time the patient rises
- 2 Hour the first meal is eaten
- 3 Of what that meal consists
- 4 Time the second meal is eaten
- 5 Of what the second meal consists
- 6 Time the third meal is eaten
- 7 Of what this meal consists
- 8 All mental influences under
which the patient is laboring,
especially fear or worry
- 9 The condition of the bowels as
to congestion
- 10 The amount of liquid taken
during the day and at meals

In nearly all emaciated cases it will be found that the patient is suffering from premature fermentation, intestinal and stomach gas, and a congested condition of the bowels commonly known as constipation.

The first remedy lies in the selection and the combination of foods which are

Foods that are necessary in the treatment of emaciation	readily soluble and assim- lable, and which contain the best flesh and cell-building properties. The chemical properties or elements most necessary are albumin, phosphorus, casein, proteids and carbo- hydrates. These elements are supplied best by milk, eggs, nuts, sweet fruits and coarse cereals, followed by a limited quantity of fresh green vegetables.
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The nutriment contained in the egg is all that is required for the young chick,

Value of milk and eggs in the remedial diet	while the nutrient contents of milk is all that is necessary for the young animal. There- fore these two articles contain the most
--	---

reliable and speedy counteractive elements known to chemistry, but in dealing with the adult they should be supplemented by fresh vegetables, coarse grain, wheat bran, raisins, and the seeds and skins of grapes.

It must be remembered that milk has a constipating tendency when taken in

Constipation
must be over-
come in cases
of emaciation

ordinary quantities—from one to two glasses at a meal. Therefore in laying out the diet for the emaciated, it is vitally important to avoid constipation, which may be done by giving milk during the first two or three days in quantities ranging from two and one-half to three and one-half quarts a day, together with a liberal quantity of coarse cereal. (See "Constipation—The Remedy," p. 436.)

These remedial methods may be repeated day by day until a substantial gain in weight is noticed, when the diet may be normalized—such articles selected as will give to the body all the required

elements of nourishment in the right proportions.

It sometimes happens that the body is thrown into a chronic state of emacia-

Chronic emaci- ation—its cause and remedy	tion on account of a catarrhal formation over the mucous membrane of the intestines,
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which closes the "winking valves" that take up nutriment from the alimentary tract. In such cases coarse cereal or wheat bran, the seeds and skins of fruit, especially grapes, together with milk and eggs, form the best foods known. The milk and the eggs may be forced, not only beyond the limitations of hunger, but beyond the normal needs of the body. By thus forcing them for a short period of time (twenty to thirty days) a physical "trial balance" can be reached, and the body brought to its normal weight, which can be maintained for an indefinite period of time, if the bill of fare is again balanced or leveled according to the chemical requirements governed by the three nat-

ural laws, namely, age, temperature of environment, and work.

There is another condition of chronic emaciation which, in the beginning,

Diet for extreme constipation in emaciated cases

should sometimes be treated in exactly the opposite way.

For instance, when the forcing of casein proteids, albumin and nitrogen (the principal nutrient elements in milk and eggs) produces complications, such as extreme constipation, it becomes necessary to put the patient on a diet composed of coarse cellulose articles and fruit for a period of from three to six days. This should be done in the following manner:

Immediately on rising drink two or three cups of water—lime-free.

BREAKFAST

(One hour later)

The strained juice of two or three sweet oranges, or a bunch of grapes; grapes preferred

A cup of wheat bran, cooked; serve hot, with thin cream

LUNCHEON

Plain wheat and an equal quantity of coarse wheat bran, cooked until very soft; preferably simmered over night

A salad of celery, lettuce and tomatoes, with nuts

DINNER

About four tablespoonfuls of boiled wheat; also one of bran

A baked potato

One fresh vegetable

Drink copiously of water at all meals.

Just before retiring, eat half a pound of grapes, when in season.

After the first or second day this bill of fare may be increased in quantity, and heavier fruits added, such as pears, prunes, and very ripe bananas. After the fourth or fifth day, a salad and a few of the lighter vegetables, such as onions, romaine or cabbage, celery, carrots, or other fibrous vegetables may be included.

After the first week the diet should be composed of fresh vege-

tables, coarse cereals, eggs, bananas, nuts, salads, and wheat bran.

Those who are emaciated should drink an abundance of water immediately on rising and at meals. They should also take a sufficient quantity of plain wheat bran, or grapes if in season (Concord preferred), eating skins, seeds, and pulp, in order to keep the bowels in normal condition.

In cases of extreme emaciation, loss of appetite, or fermentation, the patient should, for a time, adopt a diet of milk and eggs, alternating as follows:

The first, second, and third days, drink from two and a half to four quarts of milk, in small quantities—one glass at a time. For the next three days, reduce the quantity of milk, and begin taking six eggs a day, increasing the number, until twelve eggs are taken. Alternate between the milk and the eggs, for a month or more, unless

the patient responds in weight in a shorter time. When there is a perceptible gain in weight, and normal hunger has been restored, reduce the milk and the eggs, and add the solid foods already suggested.

In cases of Emaciation:

OMIT	EAT
Acid fruits	Bananas
Coffee	Cheese
Condiments	Coarse cereals
Tea	Eggs
Tobacco	Fruits
Wines and liquors	Dates, figs, raisins
	Milk
	Sweet milk or buttermilk
	Nuts
	Vegetables, such as—
	Beets Lettuce
	Cabbage Parsnips
	Carrots Potatoes
	Celery Spinach
	Cauliflower Turnips
	Green beans Green peas

The proteid and the carbohydrate foods should predominate in the diet.

OBESITY OR OVERWEIGHT

It is generally supposed that obesity is a natural result of modern civilization.

Diet, the governing law of body-weight

This theory has no foundation in fact or physiology.

Man can be genuinely modern without being obese. The law that governs the growth and graceful symmetry of the human body is based upon dietetics, and the indispensable adjuncts of diet are exercise, oxidation and elimination. A body that is filled with vitality by a perfectly balanced diet will experience the same appetite for motion or exercise that it does for food or drink. Exercise forces more blood to the lungs, and more thorough oxidation is the result. The properly fed young animal, whether brute or human, plays and exercises involuntarily, and the older animal, adequately nourished without being overfed, does not lose its youthful instincts. An observance of the above laws will prevent

the accumulation of an excess of fatty tissue.

The following table gives the normal weight of natural healthy adults according to height, also the weights considered thin and obese:

		MALES			FEMALES		
Height		Weight			Weight		
Feet	Inches	Thin	Fat	Normal	Thin	Fat	Normal
5—	—.....	95	126	110	93	122	111
5—	1.....	98	132	115	94	128	116
5—	2.....	100	138	120	96	134	118
5—	3.....	106	144	125	102	140	121
5—	4.....	110	149	130	105	145	126
5—	5.....	114	155	135	109	151	131
5—	6.....	116	158	138	112	154	134
5—	7.....	118	161	140	114	157	136
5—	8.....	121	164	143	117	160	140
5—	9.....	126	173	150	123	169	145
5—	10.....	131	178	155	126	173	150
5—	11.....	133	184	160	128	179	155
6—	—.....	136	190	165	131	185	160
6—	1.....	140	192	170	135	187	165
6—	2.....	148	201	175	143	196	170
6—	3.....	152	207	180	147	200	175

OBESITY—THE CAUSE

A very exhausting treatise could be written upon the cause of obesity, but, summing it all up briefly, corpulency is invariably induced through a direct or indirect violation of the laws of nutrition, as exemplified in their wonderful processes of transforming material called food into pulsating life.

A combination of commissions and omissions generally conspire to produce the obese body. They may be mentioned in the order of their importance:

- 1 Overingestion of fat-producing foods
- 2 Omission of the proper amount of motion or exercise
- 3 Imperfect oxidation (breathing)
- 4 The overconsumption of fluids

In every case of obesity, one or more of these causes are present. If one is blessed with good digestion and good assimilation, or, in other words, if all the nutriment taken into the body is absorbed into the tissues, then the quantity must be regulated by one's work or labor, otherwise any excess of fat-producing food is stored up by provident Nature, contemplating future use; and if it is not used, by actual work, the result is a gradual accumulation of fatty tissue. Again, if a quantity of food commensurate only with the requirements of mental labor be consumed, and only ordinary body-activity indulged in, there is likely to be a gradual decrease in weight, because a considerable percentage of energy is consumed by the mere carrying on of the vital processes.

The worst form of obesity, however, is that caused by overconsumption of fermented wines or malted liquors. This

Obesity
caused by
overeating

form of enlarged tissue contributes no strength whatever to its own support.

Obesity It is as much of a dead
caused by weight as a hod of mortar,
drinking and much more useless; in
malting liquors fact, all forms of obesity are not only
useless weight, but dangerous to life.
The obese body is much more liable to
contagious and infectious dis-eases, and
when once affected, less able to defend
itself than the normal body.

OBESITY—THE REMEDY

The control of body-weight rests upon three distinct and separate laws, the first and most important of which is nutrition, the second exercise, and the third oxidation.

While at the outset body-weight may be controlled by increasing the amount
The storing of of activity sufficiently to use
fat regulated the surplus which Nature is
by labor or storing away, if however, the
activity activity ceases and the surplus is not used,

then the storing process becomes chronic, and radical remedies both in regard to dietetics and activity must be applied in order to bring the body back to normal.

A man of normal weight, say 150 pounds, doing ordinary work in a tropical

Amount of fat
required daily
in different
climates

country, would not need to consume more than an ounce of fat each twenty-four hours,

while the same man in a northern climate, where the thermometer ranges from zero to 20 below, could use up, with similar labor, from three to four ounces of pure fat daily. Fats, however, do not produce fat in the human body unless taken largely in excess of its needs. Their primary purpose is to keep up the temperature of the body.

Where the weight is only from ten to fifteen pounds above normal,

Dietetic sug-
gestions for
chronic obesity

a substantial reduction can be made by merely balanc-

ing the diet, but where the accumulation

of adipose tissue has become chronic, and the body has taken on from twenty to fifty pounds, or more, above normal, then a diet composed largely of non-acid fruits and fresh vegetables should be adopted for a period of from twenty to thirty days.

Carbohydrates, that is to say starch and sugar, are the principal fat-making nutrients, and all people inclined to take on abnormal weight, as a rule, are very

**Foods that
produce fat**

fond of, and eat an excess of starchy foods. A great amount of the casein in milk and the phosphorus in eggs are converted into fat, especially if a quantity be taken in excess of the amount used in effort or work. The fat-producing staple foods are:

All cereal products	Eggs
All legumes	Milk
Bread	Potatoes

In order, therefore, to remove the causes of obesity, one must begin with the diet.

Eliminate meat and animal fat; ascertain as nearly as possible the amount of carbohydrates necessary for each day and take none in excess of this quantity. This

**Foods that
reduce fat**

will stop the accumulation of fatty tissue. If the body is obese, and a reduction of weight is desired, the diet should consist of nuts, fruits, salads, fresh vegetables, and a very limited quantity of eggs, omitting starchy foods entirely. After a week or two of this diet, discontinue the use of eggs, reducing the diet entirely to nuts, fruits, fresh vegetables and salads, which in nearly every case will bring a very substantial reduction in weight, even if the patient takes but little exercise and fresh air. If, however, he can be induced to adopt the above diet, and at the same time take two hours' moderate exercise, either in gymnastics

or useful labor, with a reasonable amount of exposure to fresh air, the reduction in weight will be greater, and the muscular tissue and vitality will increase.

Inasmuch as fat contributes no item of strength to its own support, if the patient will take a reasonable amount of exercise and fresh air, muscular tissue will increase in the same ratio that fatty tissue decreases.

The menus for obesity may be varied according to the fruits and vegetables

at one's command. Fish
How menus
for obesity
may be varied is the one article among
 animal food that has much
 to recommend it, insomuch that it contains an excellent form of proteid and phosphorus. If the taste of the patient should rebel against natural foods, fish would supply these elements better than any form of flesh.

The following articles should compose the general diet for the obese under ordinary conditions:

500 ENCYCLOPEDIA OF DIET

Buttermilk

Eggs or fish—limited quantity

Fruits

Green salads

Nuts

Fresh vegetables

Such as—

Asparagus Peas

Beans Pumpkins

Beets Spinach

Carrots Squash

Celery Turnips

Parsnips

The ordinary obese person should adopt either of the following menus, varying them according to vegetables in season:

MENU I

MENU II

BREAKFAST

An orange, or grapes

One or two eggs, whipped

Choice of two of the following: Berries, grapes, peaches, plums, pears, apples, melons, soaked evaporated apricots, peaches, or prunes

LUNCHEON

Choice of two fresh vegetables, cooked	One fresh vegetable
A baked potato	A small portion of fish
One very ripe banana, with two tablespoonfuls of nuts	A baked potato

DINNER

A salad of lettuce or romaine	Spanish onions
Peas, beans, beets, carrots, or turnips	An egg, or a small portion of fish
Two tablespoonfuls of nuts	Tablespoonful of nuts
One egg	One or two vegetables
	A green salad

If the patient is doing manual labor, the proteid foods, such as milk, cheese, nuts, fish and eggs should be increased according to the work. If, however, the labor is sedative, such as followed by the average business man, the amounts herein prescribed are sufficient. The breakfast should be taken an hour after rising, and the luncheon early, not later than 12 noon, and the dinner not later than 6 p.m.

The symptoms during the first two or three days will be that of weakness and perhaps hunger, leaving the impression of under-nourishment. This will disappear after the third or fourth day, and strength will not only return to normal, but the body will feel more energetic than before, and there will be a marked increase in the powers of endurance. If the patient can be induced to "fight it out" for a week on these lines, favorable symptoms will develop so fast that the practitioner will be aided in his work by the mental conviction of the patient, and success will be assured.

In cases of Obesity:

OMIT	EAT	
Bread products	Eggs—limited	Nuts
Cereals	quantity	Succulent vegetables
Dried beans	Fish or Lobster	Wheat bran
Flesh food	Fresh vegetables	Whole wheat thor-
Milk	Fruit	oughly cooked
Sweets	Melons	(sparingly)

Do not drink at meals.

NEURASTHENIA

That disorder of the nerves known as neurasthenia is expressed in general anemia, or a breaking down of the nervous vitality. This does not indicate, however, that neurasthenia is wholly a dis-ease of the nerves; it merely means that through the nerves the symptoms are given to the brain.

Neurasthenia is a signal or warning given by the united voice of all the functions of digestion, secretion,

Neurasthenia
a last or final
warning

and excretion. Therefore, this disorder does not appear until the body has given fair warning in many other ways, and if proper heed had been given the preceding signals, the nerves would have performed their functions without an outcry.

Every so-called dis-ease of the human body, especially of the nervous system, is in reality the voice of Nature telling us of our mistakes, and giving us the

opportunity to correct them. Dis-ease, therefore, is not an enemy to the race, but a friend. It is an effort, as it were, in our behalf, of provident Nature to prevent race extinction.

Nearly every seeming misfortune with which we are afflicted can be turned to our benefit. We never take a step upward until we are mentally prepared for it; we never become mentally prepared until we have passed through a certain amount and kind of experience.

Education reduced to its last analysis is merely the accumulation and co-ordination of useful knowledge; useful knowledge is accumulated only by and through the art of comparison. The more experience we have, the more comparisons we can make.

Country-raised people control the great industries of the city and lead in the nation's great work because they never become *blase*. They have always their

homely and primitive child life to draw upon for comparisons. Every good **Ability to make comparisons, measures, ability to enjoy** thing, every invention, every step forward and upward, every advancement is appreciated and realized exactly according to their ability to compare these things with their opposites.

If the patient should be suffering from mental disturbances called worry, he should be reminded that he is merely a floating mote in the abyss of space, and if the matter composing his form should change from organic to inorganic, from active to inactive; in other words, if he should die, the great planets would move on in their majestic courses and the cosmic scheme would in nowise be interfered with.

NEURASTHENIA—THE CAUSE

Neurasthenia is caused by a violation of the laws of nutrition, such as over-eating, taking intoxicants, tea, coffee,

tobacco, stimulating and sedative drugs; an oversupply of certain elements of nourishment and an undersupply of others; failure to eliminate waste; a lack of activity or motion, and improper oxidation. These causes removed, nervousness and all neurasthenic tendencies disappear, and Nature asserts herself and produces physical normality.

NEURASTHENIA—THE SYMPTOMS

Neurasthenic symptoms are excitability, irritability, mental depression, insomnia, fatigue, exhaustion, emaciation and sometimes hysteria, which very often result in other local disorders, such as extreme constipation or chronic hyperchlorhydria, with a tendency toward weakened sexuality.

NEURASTHENIA—THE REMEDY

In medical literature there are hundreds of alleged remedies for nervous disorders, yet not one of them attempts to ascertain the causes and to suggest

their removal. Drugs only paralyze and stupify the delicate, sensitive nerve fibers that are conveying the intelligence to the brain that something is wrong, and the average man mistakes this for a remedy or a cure.

In the opinion of the writer, neurasthenia would be almost impossible if the body were thoroughly nourished and the daily bill of fare kept level, or, as we would say in our cash system, "balanced." But when one labors under heavy mental strains, especially that character of burden called worry, and is not properly fed and nourished, the expenditure of force on one side and the lack of supplying it on the other, are very likely to result in an abnormal physical condition called neurasthenia. It is safe to say that all cases of neurasthenia can be traced to improper nourishment on the one hand and abnormal mental tension on the other.

Unbalanced
diet, a primary
cause

The rest cure has been employed quite successfully for these conditions for many years, and if the proper diet, or what might be called a counteractive or remedial diet, were employed in all the rest cure establishments, they undoubtedly would meet with greater success, but unfortunately some of the best institutions in the country—those best equipped to take care of neurasthenic patients—do not attach any great importance to diet. This comes, no doubt, from the universal lack of information concerning the natural laws governing Food Chemistry, and their particular application to animal life.

Neurasthenic patients should first be given rest, which means complete or total diversion from business cares, worry, financial or social responsibility. They should be induced, if possible, to become interested in some special eleemosynary work; some "hobby" that has for its purpose

Diet more important than rest

Suggestions for the neurasthenic

the uplifting of people. The best remedy for the weary or discouraged mind, or the neurasthenic body, is the praise and esteem of people.

The suggestions hitherto given for all kindred disorders will apply in most cases of neurasthenia. (See also "Nervousness—Its Cause and Cure," Vol. V, p. 1211.) The patient should be advised to spend at least from three to four hours a day in the open air and sunshine, when the weather will permit, in some quiet way, walking, driving, or in moderate exercise.

Most important of all is the diet. It should be balanced according to age, labor, and temperature of the atmosphere, and should consist of—

Such foods as will cause normal action
of the bowels
Green corn
Nuts
Rich fresh milk
Yolks of eggs
Young beans, peas, or any legume be-
fore it hardens

Immature starch composes the best form of carbohydrate food, which is exceedingly necessary in most cases of neurasthenia, unless the patient be obese, in which event it should be reduced to meet only the requirements of the body, and nitrogenous foods should predominate.

A passive form of exercise is very highly recommended, such as all forms of Swedish or mechanical electrical massage. In connection with this the body should be given an olive-oil rub at least twice a week.

In cases of Neurasthenia:

OMIT	EAT
Confections	All legumes
Desserts	Cheese
Fatty foods	Eggs (yolk)
Hot drinks	Fish—very tender
Pastries	Fresh milk
Rich gravies	Fresh vegetables
Red meat	Green corn
Stimulants	Nuts
Tea and coffee	Potatoes
White flour products	

MALNUTRITION**CAUSE AND REMEDY**

Malnutrition is caused mainly by errors in eating, sedentary habits, and lack of fresh air. The remedy, therefore, suggests itself. Level or balance the diet according to the patient's requirements, and advise from two to three hours' vigorous exercise every day, and deep breathing in the open air.

All the causes as well as the cure of malnutrition were discussed under the subject of emaciation. (See "Emaciation," p. 477.)

LOCOMOTOR ATAXIA**THE CAUSE**

The principal cause of locomotor ataxia is syphilis, the treatment of which has not been sufficiently thorough. So, after lying latent—sometimes for as long a period as twenty years—the disease breaks out again, the germs (which are

called *spirochaeta pallida*) assume new virulence, and attack the nervous system—usually the posterior column of the spinal cord.

Not infrequently, the optic nerve is also affected, developing what is known as gray atrophy of the nerves. This causes a gradual loss of vision, and finally, relative blindness.

Locomotor ataxia may occasionally be brought on by long-continued exposures to wet and cold, injuries to the spinal column, and by excesses of various kinds. But its chief origin is in syphilis—indeed, most European authorities claim that this is its only origin.

LOCOMOTOR ATAXIA—THE SYMPTOMS

Among the earliest symptoms of ataxia are the so-called lightning or lancinating pains—which come on in paroxysms of varying duration—lasting for hours, or even days at a time. These

pains may be burning, tearing, cutting or boring in their nature—and usually affect only the upper half of the body.

There is generally, also, a sense of constriction in the throat—as of a choking by the clutch of a hand—and sometimes regurgitation of food, intense pains around the heart or in the epigastrium—with flatulence, eructations, and hic-cough.

A very common symptom is the so-called “girdle,” a sensation as though a rope or band were tightly drawn around the body at the waist. One of the earliest noticeable symptoms is the want of co-ordination—ataxia. This is most pronounced in the lower extremities, and is responsible for the unsteadiness of ataxics in walking or standing.

The gait in ataxia is staggering—resembling somewhat the inco-ordination of a man under the influence of alcohol, and there is an exaggerated lifting of the feet and legs with each step. The

normal "knee-jerk" reflex—that quick jerk of the foot and lower leg that follows a sharp blow struck below the knee when the leg is held free—is generally abolished. In fact, this failure of the reflexes is usually one of the earliest diagnostic symptoms.

Later in the disease the sphincters of the bladder and the anus lose their power to contract, and there is incontinence of both urine and feces.

THE IMPORTANCE OF DIET

As with any other disease in which there are serious trophic changes, and the generation within the system of toxic products from food decay, it is absolutely indispensable in ataxia to observe the utmost care in the selection of the diet. The food should be light, but nutritious—nourishing and strengthening the system, without, at the same time, putting too great a tax upon the organs of digestion and assimilation.

Particular care should be taken to insure daily movements of the bowels, and to see that the kidneys are flushed with a plentiful supply of water drunk each day.

LOCOMOTOR ATAXIA—THE REMEDY

The generally accepted opinion among medical men is that locomotor ataxia is an incurable disease, and that there is little or nothing that any form of treatment can accomplish that will tend to restore function—or even to arrest the course of the disease, and postpone its fatal termination.

With this opinion I beg leave to differ. I am convinced that, by the proper regulation of the diet, limiting the system only to that which it requires for its complete nourishment—giving ample quantities of those foods that are rich in lecithin (or nerve-fat) and phosphorus—such as eggs, milk, whole wheat bread,

fish, roe, etc.—much may be done to arrest the progress of the disease.

This, in combination with the proper kind of exercise—particularly those forms of which the “Fraenkel Movement System” is an example,—will do a wonderful amount of good in re-educating such groups of nerves in the spinal column as have not yet suffered degenerative changes.

The following diet is a mere suggestion, subject to change in order to meet the conditions of temperature, age, and activity.

Immediately on rising, the patient should take a few spoonfuls of strained orange juice and drink a cup of hot water. He should also devote a few minutes to deep breathing, and such moderate exercises as he is able to endure.

BREAKFAST

The whites of four eggs and the yolks of two
(If digestion is good, the whites of six eggs may
be taken—one yolk to each two whites)

A glass of milk
A tablespoonful of nuts
One very ripe banana with cream
Three or four dates

LUNCHEON

Three or four eggs whipped eight minutes;
to each egg add one teaspoonful of lemon juice,
and a heaping teaspoonful of sugar; whip this
mixture into a quart of milk; drink slowly

DINNER

Smelts, or any small fish
A Spanish onion, baked in casserole dish
Corn bread
Buttermilk or skimmed milk
One fresh vegetable, cooked plain

In addition to this diet, there should be a regular daily schedule of exercise and deep breathing, which the patient should be required to carry out with rigid precision and regularity.

In nearly all cases of locomotor ataxia the body is unable to cast off the generated poisons, or used-up tissue, the result being that the new building material (food)

Value of exer-
cise and mas-
sage

taken in is not appropriated. This condition of atrophy must be overcome by exercise, massage, fomentation (wrapping the patient in a hot, wet blanket), or by anything that will induce excessive superficial circulation.

If one afflicted with locomotor ataxia can be induced to arise from his lethargy and exert himself, following the methods herein suggested, a gradual increase in strength is very likely to be experienced inside of two or three months, and sometimes a complete arrest of the process may be expected in time.

The writer had a patient, a retired ship captain, who came under his treatment after suffering for twelve years with locomotor ataxia, and after twelve months declared himself cured. The only evidence remaining of his former condition at this writing is shown when he attempts to turn around suddenly, and his control of the lumbar and motor muscles are undergoing such improvement that even

this symptom, it seems, will finally disappear.

In cases of Locomotor Ataxia:

OMIT	EAT																						
Drugs of every character	Carbohydrates — limited																						
Intoxicants	quantity																						
Sex indulgence	Corn hominy																						
Stimulants and narcotics	Dates, figs, honey																						
	<table> <tr> <td></td><td>Beans</td></tr> <tr> <td></td><td>Buckwheat</td></tr> <tr> <td>Foods</td><td>Cheese</td></tr> <tr> <td>rich in</td><td>Eggs</td></tr> <tr> <td>Proteids</td><td>Fresh corn</td></tr> <tr> <td>and</td><td>Fish</td></tr> <tr> <td>album-</td><td>Milk</td></tr> <tr> <td>inoids</td><td>Nuts</td></tr> <tr> <td>such as</td><td>Peas</td></tr> <tr> <td></td><td>Potatoes</td></tr> <tr> <td></td><td>Whole wheat</td></tr> </table>		Beans		Buckwheat	Foods	Cheese	rich in	Eggs	Proteids	Fresh corn	and	Fish	album-	Milk	inoids	Nuts	such as	Peas		Potatoes		Whole wheat
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	Rice																						
	Rye																						

COLDS, CATARRH, HAY FEVER, ASTHMA, INFLUENZA

These disorders are grouped under a general heading because there are a few

fundamental laws that affect them all alike.

Capillary congestion is a common cause in

Overeating a all these disorders, and any-
common cause thing that will produce this
of capillary condition will cause, or at
congestion

least augment catarrh, hay fever, asthma, influenza, and colds. As overeating is the primary cause of congestion throughout the capillary system, it, rather than exposure, is the most common cause of all these disorders. The treatment that will remove or prevent this form of congestion will, therefore, remove a primary cause, when such remedial measures may be employed as each case demands.

COLDS—THE CAUSE

That condition commonly known as a cold is merely a congestion of effete matter and toxic substances in the body-cells, coming from two causes, and, so far as my experience has been able to guide me, from two causes only, namely:

1 Overeating

2 Exposure to violent atmospheric changes

COLDS—THE SYMPTOMS

The symptoms from both causes manifest themselves in exactly the same way, therefore it becomes very necessary to ascertain what the sufferer has been eating, both as to quantity and as to kind of foods during the previous forty-eight hours.

It often occurs that colds from overeating are cumulative, that is, the patient habitually takes too much fat, sweets, or meat, especially the two latter articles, and these may have been digested, and their nutritive elements may have passed into the circulation, but the body being unable to use them, they finally begin to decompose and are converted into al-

Colds caused
by overeating

cohol and other decomposition products. An excess of this effete matter brought to the lungs is called a "cold."

If one who is blessed with good digestion and assimilation should habitually take an amount of nutrition in excess of his needs, it will manifest itself first, perhaps, in the growth of adipose tissue, and later in the various disorders called autointoxication, among which are colds, catarrh, etc.

If the body be exposed to a violent draft of cold air, and sufficient motion is not exerted to keep the circulation active, or if the feet be exposed to cold and wet, Nature, in obedience to the law of self-defense, closes the pores of the skin against the intrusion, hence the poisonous and effete matter that is constantly passing off through these openings cannot escape, but it is picked up by the blood and carried to the lungs to be oxidized or burned in the process of breathing.

Colds caused
by exposure

If the amount of poisons thus brought to the lungs be in excess of the amount **Colds from** that can be consumed or **overeating and** burned, a form of congestion **exposure, identical** will take place (in the lungs) causing first irritation, then suppuration, which must be thrown off in the form of mucus. It matters not whether the congestion is caused by exposure or overeating, the effects are identically the same, and Nature's method of ridding the body of these poisons is the same in either case. The only difference between an ordinary cold and pneumonia is one of degree.

COLDS—THE REMEDY

Since colds are merely a form of congestion, first in the capillary vessels and next in the lungs, the first thing to be done is to cease eating. The misunderstanding of the old adage "stuff a cold and starve a fever" has killed thousands.

of ignorant but innocent people. Its real meaning is, if you stuff a cold, you will have to starve an internal fever.

In the treatment of colds, I would suggest the following method of procedure:

1 (a) Omit all food except—

Juice of subacid fruits	{	Such as—
		Apples
		Grapes
		Peaches
		Plums

This should be continued until the congestion is relieved, whether it be one day or a week. (For list of subacid fruits, see Lesson VIII, p. 313.)

(b) Drink copiously of pure, cool water

2 Select a light diet of—

Nuts
Salads
White of eggs
Fresh watery vegetables
Limited quantity of carbohydrates

If the cold is severe, a Turkish bath or any treatment that will produce liberal perspiration, will aid in the elimination of body-poisons and the relief of congestion.

Inasmuch as the blood is conveying an excessive amount of poisons to the

Remedial
value of fresh
air and exer-
cise

lungs for oxidation, much depends upon the amount of pure air that is breathed and the cell capacity of the lungs for oxidation; therefore the sufferer, if unable to be out of doors, should be warmly clad and placed before an open window, or on a veranda in the sunshine, if possible, where every breath will be of fresh air. If, however, the patient is able to go out, every moment possible should be spent walking briskly in the open air. Every morning the patient should be given a vigorous "sponge" with a towel dipped in cold water, and rubbed down with a dry one. This should be done in a warm room, with the body well protected from undue exposure. The room should

be thoroughly ventilated at night, and in severe cases all garments and sheets used during the day should be thoroughly aired or changed at night.

The old methods of drugging and of excluding the air and sunshine, which is in reality poisoning the patient both within and without, is little less than criminal.

A cool shower, or a sponge bath, together with a vigorous rub every morning immediately on rising, and a normal quantity of natural food, render the body almost entirely immune from colds, la grippe, and all forms of capillary congestion and effete and toxic (poisonous) substances.

(For diet, see volume of Menus, p. 917.)

In cases of Colds:

OMIT

Confections
Desserts
Fatty foods
Flesh foods
Heavy starchy foods
Intoxicants

EAT

Coarse cereals (very little)
Fresh vegetables
Fruit (See p. 524)
Light vegetable soups
Nuts
Wheat bran
Whites of eggs

CATARRH—THE CAUSE

The causes of catarrh are attributed by all old school writers to acute coryza and exposure to irritating dust, or cold, moist, and perhaps infectious air. These may be secondary causes and may augment catarrh after it has appeared, but experience has proved that the primary cause of catarrh is the decomposition of unused food material, and that Nature throws off the decomposition products resulting therefrom, through the nasal passage, in the form of mucus. In the support of this theory I may refer to many cases of ordinary stomach trouble, constipation, torpidity of the liver, etc., that have had my personal care. In nearly all these cases I found that, when the diet was balanced according to the age and the occupation of the patient, with the climate or time of the year, practically all catarrhal symptoms disap-

peared, and exposure to atmospheric changes, dust, and the usual things that had formerly brought on catarrhal conditions, did not affect the patient.

CATARRH—THE SYMPTOMS

The symptoms of catarrh are constant secretion of nasal mucus, which often passes off into the postnasal and nasopharyngeal spaces. This mucus is usually thin and of a light-colored watery character, varying in quantity according to exposure or activity, the quantity of food eaten, and the temperature of the atmosphere.

CATARRH—THE REMEDY

In the treatment of catarrh, avoid the following:

All meats
Heavy starchy foods
 (Especially white flour products)
Sweets (See Lesson VIII, p. 334)

The diet should consist of—

A reasonable quantity of proteid foods in the form of—

Beans	Peas
Eggs	Sour milk
Nuts	

Bananas

Coarse cereals—twice a day; such as entire wheat and rye

Fish (small quantity, occasionally)

Fresh vegetables

Green watery salads

Non-acid fruits

Wheat bran—

(Enough to keep the bowels in normal condition)

Deep breathing through the nostrils and vigorous exercise should be taken freely, especially just after rising and just before retiring. Special attention should

Nasal
breathing

be given to breathing through the nose. When the air is pure, there is nothing more healing and remedial in the treatment of catarrh than the abundant passage of air through the nasal cavities.

In cases of Catarrh:**OMIT**

All meats
 Heavy starchy foods
 (white flour and grain
 products)
 Stimulants and narcotics
 Sweets

EAT

A reasonable
 quantity of
 Proteids
 such as

{	Beans
	Eggs
	Nuts
	Peas
	Sour milk

Bananas
 Coarse cereals—entire
 wheat and rye
 Fish, occasionally
 Fresh vegetables
 Green watery salads
 Non-acid fruits

Take vigorous exercise, together
 with deep breathing through the
 nose.

HAY FEVER

Hay fever might be called autumnal
 catarrh. It is popularly supposed to be
 an irritation of the nasal passages and
 the bronchial tubes, caused by the flying
 pollen from various flowers and plants.

HAY FEVER—THE SYMPTOMS

The symptoms of hay fever are usually a salty discharge from the eyes and the nostrils, followed by severe irritation of the mucous lining of the nasal cavity, a sense of fullness in the head, and violent sneezing.

HAY FEVER—THE REMEDY

It has not been the writer's opportunity to examine deeply into the actual causes of hay fever, but it has been his good fortune to cure many cases.

The remedy should be confined to—

Fresh air and sunshine
Close observation of the rules of diet
Total abstinence from all forms of stimulants
and narcotics

I would suggest the following diet:

Berries
Eggs
Fish (Limited quantity)

Green and fresh vegetables

Sour milk (Buttermilk)

(Where this kind of milk cannot be obtained,
the ordinary sweet milk will suffice)

The diet must be governed, as already explained in many other cases, by the individual requirements of the patient in regard to the amount of exercise, the temperature of the atmosphere, and the age of the patient. In spring and summer is the ideal time to remove the causes of hay fever and effect its cure. (See Catarrh.)

In cases of Hay Fever:

OMIT	EAT	
Coffee	Abundance of	Bananas
Confections		Berries
Condiments		Fresh
Liquors and wines		vegetables
Tea		Green salads
Tobacco	Limited quantity	Sweet fruits
White flour products		Eggs
		Fish
		Sour milk (buttermilk)

The diet should be governed by amount of exercise, temperature, etc.

ASTHMA

THE CAUSE

The cause of asthma is congestion in, or constriction of, the bronchial tubes. This congestion is usually caused by overeating and the excessive use of narcotics and stimulants such as tobacco, liquors, and beer. The excessive use of sugar and starches, or what is generally known as carbohydrates, will set up a form of difficult breathing, or at least augment asthmatic tendencies. This condition is more likely to occur among those whose lungs are weakened and who have a tendency toward consumption.

ASTHMA—THE SYMPTOMS

There are but few conditions preceding asthma that can properly be called symptoms. The attacks are usually violent and frequently come on late at night.

The patient suffers with a sense of asphyxia, which causes the impression of death from suffocation.

ASTHMA—THE REMEDY

The causes of asthma can be removed by diet, fresh air and exercise. If the patient can take a reasonable amount of exercise, sunshine and fresh air, the cure will be more rapid, but if this cannot be done, the diet can be limited so that there will be but little waste, therefore little congestion, and the necessity for exercise and fresh air will be reduced to the minimum.

In cases of asthma, the diet should be confined to—

Egg albumin

Limited quantity of nuts

(No more than two ounces per day)

An abundance of—

Fresh and green vegetables

Fruits

Salads

If meat be taken at all, it should be confined to fish, young and tender game, or fowl, although these articles are not recommended.

If the patient be obese or above normal weight, the diet given for obesity should be rigidly observed. If of normal weight, the body should be fed somewhat below its physical requirements, even if a radical loss in weight should be experienced for the first three or four weeks.

If the patient is emaciated, then the diet should consist of six or eight eggs, and about one quart of milk daily, together with sweet fruits and fresh vegetables. Milk may be given in larger quantities, up to three quarts daily, if all other food except eggs be omitted.

In cases of Asthma:

OMIT	EAT
All intoxicants Coffee Condiments Confections Red meat Tobacco	About two ounces of nuts per day (no more) Abundance of { Fruits Salads Fresh green vegetables Egg albumin If any meat, it should be fish or tender fowl

INFLUENZA

THE CAUSE

This disorder is popularly supposed to be of bacteriological origin, but upon this question the scientific world is much divided. In the opinion of the writer the cause of influenza cannot be traced to bacteria or any other form of germ life. Bacteria is nearly always present in decomposing animal matter. It is the opinion of the writer, therefore, that bacteria is the result and not the cause of influenza. It might be described as an acute activity of the entire system in throwing off accumulated waste or toxic substances. This process of excretion will become more difficult at certain times, during violent changes in temperature, and many people in small communities may be similarly afflicted, which no doubt gives rise to the theory that it is a disease of germ origin.

Bacteria the
result, not
the cause

INFLUENZA—THE SYMPTOMS

The symptoms are headache, languor, sometimes nausea and congestion in the lungs, together with acute irritation of the nasal passages.

INFLUENZA—THE REMEDY

The logical remedy is normal temperature of environment, abundance of fresh air, and omission of all solid food.

There are two specific forms of diet to be recommended—

- 1 A liquid diet entirely, such as—

Juice of berries

Orange juice

Milk

Very thin vegetable soups

- 2 Confine diet entirely to—

Nuts

Fruits

Fresh green vegetables

- 3 Eliminate fats, starches, sugars

Either of the above suggestions will be sufficient to control an ordinary case of influenza if it is rigidly adhered to.

In the spring and summer, the latter diet would be recommended, while in winter, when green and fresh vegetables, fruits, etc., cannot be procured, the milk diet should be given.

In cases of influenza, see menus for colds, hay fever, and catarrh. Take choice, giving preference to those prescribed for hay fever. Whichever menu is chosen, it should be taken in its entirety; that is, do not select the meals from two or three menus.

INSOMNIA

THE CAUSE

The inability to sleep is caused:

- 1 By intestinal congestion or sluggish intestinal peristalsis**
- 2 By irritation of the mucous membrane of the stomach and intestines**

3 By the presence of gas, super-acidity, and the consequent irritation and excitation of the nerves leading out from the digestive tract

4 By the use of tobacco

5 By the consumption of stimulants and narcotics, which are so universal and so life-destroying

The effects of (4) and (5) upon the stomach are much the same as those of overeating, in that they invariably cause supersecretion of acid, and, in the majority of instances, produce false appetite, thus augmenting the baneful habit of overeating.

INSOMNIA—THE REMEDY

The logical remedy for insomnia is first to eliminate the use of tea, coffee,

tobacco, distilled and malted liquors, and drugs of every kind whatsoever, as the ultimate effect upon the stomach of all these things is the same. When this has been done, the amount of food required by the body, governed by the three laws of age, work, and temperature of environment, should be accurately laid out so that the quantity of food may be controlled and overeating avoided.

The diet should also be balanced according to the chemical needs of the body heretofore mentioned. In a

Cases necessitating a special remedial diet

majority of cases, when the food scientist can prevail upon his patient to confine himself to a normal quantity of food, reasonably well balanced as to nutrient elements, the stomach will perform its natural functions, and fermentation with its long train of ills will gradually disappear. This can, in many instances, be accomplished by merely standing out of Nature's way, but in some cases the stomach, liver, in-

testines, and nervous system have been so long abused and so impaired that they seem to have entered into a conspiracy for mutual protection, hence may not yield to the "normal quantity" or "balanced dietary" remedy. In these cases a remedial diet must be followed, such as will restore the balance by omitting altogether the elements on which the patient had been overfed, and taking an excessive quantity of the elements for the lack of which the patient had been suffering.

The following menus should be adopted in the treatment of ordinary cases of Insomnia:

**SUMMER
BREAKFAST**

Cantaloup
A baked banana
Wheat bran, cooked

**WINTER
BREAKFAST**

Hot water
Wheat bran, cooked
Whole wheat, thoroughly
cooked
Thin cream

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LUNCHEON

A baked potato or fresh corn Vegetable soup

LUNCHEON

DINNER

Choice of one of the following:

**Beans Peas
Carrots Spinach
Corn Squash**

**A potato—eat skins and all
Wheat bran**

DINNER

Choice of one of the following:

**Cabbage Parsnips
Carrots Turnips
Eggplant**

**One two-minute egg
A baked potato**

In cases of Insomnia:

OMIT

**Distilled and malted liquors
Drugs of every kind
Desserts
Flesh foods
Soda-fountain drinks
Tea and coffee
Tobacco
White bread**

EAT

**All fresh vegetables
Coarse cereals, boiled whole
Egg whites
Leafy salads
Nuts
Wheat bran, if constipated**

**Mastication should be very thorough.
Eat sparingly at the evening meal. Two**

meals a day preferred, 9 a.m. and 5.p.m.
 Drink plain water.

RHEUMATISM—GOUT

These disorders are grouped under the same heading because they are of identical origin.

In the average body of five feet eight inches in height, there are about 2,000 miles of tubing, classified under the various names of arteries, veins, capillaries, and nerves. Altogether this is called the circulatory system. A vast amount of this system is infinitely small. Every atom of food taken into the circulation that is not used or converted into energy passes into some of these infinitely small tubes and nerve fibers. These tubes are susceptible of considerable expansion in the fleshy part of the body, but where they pass through the joints or cartilage, there is but little expansion. There these

Why rheuma-
 tism manifests
 itself largely
 in the joints

undissolved atoms are most likely to congest, therefore the first expression of rheumatism is usually in the joints. If it takes place at the terminals (fingers or toes), it is called gout; if in the muscles, it is called muscular or inflammatory rheumatism. This congestion accounts for the stiffness and lack of elasticity in the joints. These accumulated atoms become in time almost as hard as bone.

RHEUMATISM—THE CAUSE

The cause of both rheumatism and gout are practically the same—that is, overeating, especially of flesh and starchy foods. *Meat* and *bread* are the two things that cause nearly all rheumatism, though rheumatic symptoms often appear among vegetarians, caused by the overconsumption of starchy food, especially when acid fruits are used. The ideal diet for producing rheumatism is cereals, white bread, meat, acid fruit and eggs.

RHEUMATISM—THE SYMPTOMS

The symptoms of rheumatism often manifest themselves a year or more before an attack comes on.

The *earlier* symptoms are—

Languor, stupidity and dul-
ness in the morning
Impaired circulation and a
sense of body-heaviness

The *later* symptoms are pain in the joints or muscles, often followed by inflammation and severe soreness and stiffness.

The rheumatic usually has good digestion. In fact, it is the ability of the digestive organs to force more nutrition into the circulation than is needed, that produces this dis-ease.

In nearly all cases of rheumatism and gout the patient will be found to have been a large consumer of starchy food,

especially of the cereal family, which is the most difficult of all starches to dissolve.

GOUT—THE CAUSE

The primary cause of gout is faulty metabolism; behind this, however, are other causes. The metabolic process is rendered faulty or incomplete by the over-ingestion of heavy starchy foods. This excess of starch, which the body is not able to appropriate or use, becomes acted upon by the excess of acid which is always present when too much starch is consumed. This harmful process is often augmented by the eating of fruit-acids such as grapefruit, lemons, oranges, pineapples, and other citrus-fruits. In addition to these causes the uric acid residual in meat and in the yolk of eggs is an important factor in the causation of gouty or rheumatic conditions.

GOUT—THE SYMPTOMS

The earlier symptoms of gout are nervousness, irritability, and sometimes insomnia. In the second stages, shooting pains through the fingers and toes are experienced, and later a swelling or a slight inflammation of these terminals. After this acute condition has existed for perhaps a year, the pain may cease and the joints may begin to swell. Knots are also often formed, especially upon the hands, and sometimes upon the feet.

RHEUMATISM, GOUT—THE REMEDY

The remedy for these disorders may be said to lie wholly within the realm of diet, exercise and oxidation, supplemented by a liberal superficial application of heat, such as Turkish and electric light baths.

In all cases of rheumatism and gout, the following should be omitted:

All acid fruits, such as,

Grapefruit

Oranges

Lemons

Pineapples

Limes

Eggs

Red meats

Starchy foods (Carbohydrate class)

The diet should be confined to—

Fish and white meat of fowl

Fresh vegetables

Nuts

Salads

Sweet and non-acid fruits

(See Lesson VIII, p. 313)

If the diet were confined wholly to green salads, fresh vegetables and white

meats, it would remove the causes of these disorders, and inasmuch as Nature is always striving to create perfect health, the cause being removed, she would begin at once to apply the remedy, by removing the congested mass of undissolved calcareous matter, atom by atom. Thus the active principle of rheumatism would disappear.

Where the joints have become enlarged, the best that can be done is to render them flexible. It is almost impossible to take out of them all the accumulated deposits, and to reduce them to their natural or normal size.

In addition to the above-named restrictive diet, the patient should be

Natural perspiration vs. artificial in the treatment of rheumatism

given sufficient exercise each day to generate enough heat to cause perspiration. It is well to remember that one drop of perspiration forced out of the body by activity is worth a dozen drawn out of the body by the application of superficial heat, such as the Turkish bath. Natural perspiration should come from exercise (muscular friction). This is the method designed by Nature to throw poisonous substances to the surface in the form of sweat, thereby demolishing the old cell and making a place for the new. The Turkish bath and massage is the lazy man's method of cheating

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Nature, and cannot possibly bring as good results as can obedience to the natural law of motion.

In cases of Rheumatism and Gout:

OMIT	EAT
All acid fruits—	Buttermilk
Grapefruit	Fish and white meat of fowl
Lemons	Fresh vegetables
Limes	Nuts
Oranges	Potatoes
Pineapples	Salads (green)
Coffee	Sweet fruits (non-acid)
Eggs	
Liquors, wines, beers	
Red meat	
Starchy foods	
Tobacco	

Eat rather sparingly, especially
at the evening meal.

BRIGHT'S DIS-EASE

This disorder is confined entirely to the kidneys. In its final analysis it is

nothing more than consumption or destruction of the kidneys by thrusting upon them a greater amount of waste matter than they are capable of throwing off, the result being (1) irritation; (2) ulceration; (3) suppuration or consumption.

BRIGHT'S DIS-EASE—THE CAUSE

The causes of Bright's dis-ease are overingestion of food, especially sweets, starches and meats; the taking of stimulants and narcotics, and the consequent failure of the body to eliminate the poisons or waste accumulating therefrom.

BRIGHT'S DIS-EASE—THE SYMPTOMS

The symptoms of Bright's dis-ease are scant amount of urine, heavily laden with solids and fatty granules, while leucocytes and even red blood-corpuscles are often shown, especially in advanced cases. Dull pains in the small of the back,

and a general weakening in the lumbar regions are common symptoms.

BRIGHT'S DIS-EASE—THE REMEDY

It has been popularly supposed, and announced from many alleged sources of authority, that there is no remedy for this dis-ease, and Prevention of Bright's dis-ease by correct feeding from the standpoint of *Materia Medica* this probably is correct, but from the standpoint of the natural scientist there is a remedy. However, Bright's dis-ease, like all others herein discussed, can better be prevented than cured, and under a correct dietetic regimen, with plenty of exercise and fresh air, the kidneys, like every other organ of the body, will perform their normal functions.

When Bright's dis-ease has made its appearance, the first thing to be ascertained is the character of the diet and the general habits of eating and drinking

during the previous two or three years; secondly, the occupation or habits of exercise, especially exposure to fresh air and sunshine.

BRIGHT'S DIS-EASE—THE TREATMENT

A very restricted diet should be observed, consisting largely of the following:

Fresh vegetables

Green salads

Subacid fruits

The fine cereals—

(Such as barley and rice)

Milk and eggs—(limited quantity)

All *sweets* taken should be in the form of sweet fruits. (See Lesson VIII, p. 313).

Milk is very beneficial in this condition—especially when taken in the form of buttermilk, clabbered milk, koumyss or zoolak. The lactic acid ferments in the sour milk help to destroy the germs of putrefaction in the intestines, which are always one of the aggravating causes of Bright's disease.

Sometimes an exclusive acid milk diet for a while works wonders.

If the patient is under treatment in the spring and summer, as many green plants and fresh sweet fruits as possible should be taken, in connection with the milk, eliminating cereal starch entirely. In the fall and winter, the many varieties of apples and autumn vegetables may be taken in liberal quantities.

**Suggestions
for diet in dif-
ferent seasons**

green plants and fresh sweet
fruits as possible should be
taken, in connection with the

GENERAL SUGGESTIONS FOR BRIGHT'S DIS-EASE

In the majority of cases it is well to first put the patient on a short fast of about twenty-four hours, and then begin the diet with articles containing a liberal quantity of cellulose, such as the entire wheat, boiled; celery, cooked in casserole dish.

Keep the bowels open by the use of wheat bran, or grapes, if they are in season, swallowing skins, seeds and pulp.

As in all sympathetic disorders, an abundance of pure, cool water should be taken and as much time as possible should be spent in the open air and sunshine.

Care should be taken to limit the diet to the minimum so that the excretory organs can easily eliminate all waste matter, and so that there may be no further poisonous accumulations.

In cases of Bright's Dis-ease:

OMIT	EAT
Drugs	Abundance of nuts (Italian pine nut)
Flesh of every kind	Fine cereals—barley, rice
Intoxicants	Fresh vegetables
Rich desserts	Green salads
Sweets	Limited quantity of milk and eggs
	Sweets in form of fruit-sugar, such as dates, figs, raisins (limited quantity)
	Subacid fruits
	Wheat bran with evening meal

The diet should be somewhat restricted.

Drink an abundance of pure water.

DIABETES

This disorder may be described as one of malassimilation from the stomach, liver, kidneys, and intestines, but to the trained student it is better described as a condition in which the capacity of the body to burn or use grape-sugar has become chronically depressed. It is usually supplemented by a lack of physical exercise and elimination of body-poisons.

DIABETES—THE CAUSE

From the above explanation it will be seen that diabetes, like all other diseases of the digestive organs, is caused directly by errors in eating—overconsumption of carbohydrates (sweets and starches), and albuminoids. These errors are augmented

by inactivity, causing lack of assimilation or utilization of nutritive elements.

DIABETES—THE SYMPTOMS

The symptoms of diabetes are intense thirst and appetite, copious passing of urine and the presence of excessive quantities of sugar and uric acid therein.

DIABETES—THE REMEDY

The selecting, proportioning and balancing of the daily menu, together with an observance of the natural laws hitherto laid out, will prevent diabetes, but after it has made its appearance the remedy lies in simple and limited feeding.

The sufferer should be put upon a rigid diet of fresh vegetables, nuts, fruits, and salads. If the body has not been trained to accept these foods, the diet might consist of the following:

Bloodless (white) meats
Eggs
Fats—reasonable quantity
(Olive-oil, butter, cream)
Fish
Fresh vegetables
Green salads—generous quantity
Nuts

If the patient be *overweight*, the diet should consist largely of subacid fruits and nuts. If *underweight*, a liberal quantity of sour milk should be given, especially whole soured milk in which the cream is also present.

In extreme cases the patient should be required to subsist upon Pignolia

(the pine) nuts, and green or
Diet in ex-
treme cases of
diabetes fresh vegetables uncooked.

The writer knows of a gentleman suffering from a very advanced case of diabetes, who, in utter despair, adopted a diet consisting entirely of pine nuts, merely because they appealed to his taste, while nothing else did. A noticeable change for the better was seen

in a week, especially in regard to the amount of sugar passed in the urine. He adhered rigidly to this diet for nearly three months. He then added green salads and carrots, and the seventh and eighth months a few fresh cooked vegetables, and was pronounced thoroughly cured before the year had expired. This might have been due partly to the limited bill of fare, but undoubtedly it was largely due to the food elements contained in this wonderful product of the Italian pine.

In cases of Diabetes:

OMIT	EAT
Condiments	All fresh vegetables, cooked
Confections	—preferably in casserole dish
Irritants	Nuts
Pastries	Baked potatoes
Red meats	Coarse whole cereals thoroughly cooked — small quantity
Stimulants and narcotics	Fish
Sweets	Milk (sour)
White flour products	Very ripe subacid fruit
	White meat of fowl

Drink an abundance of pure water.

In treating diabetes, foods containing starch and sugar should not be wholly eliminated from the diet, but should be administered in limited proportions, or such quantities as the body could use. Starches and sugars contained in cereals and legumes, however, should in extreme cases be omitted because they are difficult to digest and to assimilate. If the digestion is impaired, the body is likely to cast out these valuable nutrients through the kidneys, rather than labor to digest and to assimilate them. The starches and sugars found in fresh vegetables (See table, Vol. III, p. 614), are easily digested and assimilated, therefore in cases of diabetes the body will use or appropriate them, as this entails less energy than that required to cast them out.

CONSUMPTION

For many centuries chemists, scientists, and medical men generally have been

vainly battling with this dis-ease. It is only within the past decade that it has been understood or successfully treated.

Consumption is an infection of the lungs by the bacteria called bacillus tuberculosis. The local inflammation produces lesions, and the formation of small growths (nodules) of gray, white, or yellowish tubercles.

It is yet an open question and a matter of grave doubt in the minds of various authorities on this subject as to whether the bacilli is the real *cause*, or the *result* of the dis-ease. The fact that a person or an animal afflicted with tuberculosis was in "susceptible condition" is much emphasized by all authorities.

Such disorders as catarrh, influenza, chronic colds, etc., are all predisposing conditions. Such trades as metal grinding, spinning, weaving, cleaning grain, street sweeping, or any vocation necessi-

Authorities
differ concern-
ing the bacil-
lus

Predisposing
conditions and
occupations

tating the breathing of large quantities of dust, are termed predisposing occupations, which show very clearly that all writers are practically agreed that the real cause is undoubtedly due to imperfect oxidation or impaired use of the lungs.

The above conditions may be brought on from two specific causes—

1 By the habitual overingestion of food, and the consequent congestion of effete matter in the lungs, brought thither by the circulation in its effort to dispose of the waste-products by burning them with oxygen.

2 Through the agency of foreign substances breathed in, which gradually congest, and prevent thorough oxidation and normal activity of the excretory function of the lungs.

The opinion of the writer is that the bacillus above referred to is the result and not the cause of this dis-ease, and

that such living organisms (bacilli) are created in the economy of Nature to dispose of this congested matter, just as she, in her provident economy, disposes of the carcass of a dead animal.

The fact that a tuberculosis culture, deposited in the lungs of another animal, reproduces the disease, proves nothing, as it may have been planted in susceptible soil, well prepared for the growth and the development of the bacteria. The fact that some very healthy animals did not contract the disease by this method, supports the theory that if conditions are not favorable the culture is killed by the process of oxidation. This sustains the theory that the bacillus tuberculosis is the result, and not the cause of this dread disease. This theory is further supported by the results of the most modern and only successful methods of treating it.

Bacilli the result, not the cause of consumption

Facts shown by experiments and by modern treatment of consumption

CONSUMPTION—THE TREATMENT

When beginning treatment, the tubercular patient should be restricted as to diet for the purpose of giving Nature an opportunity to make use of every atom of food taken into the body, leaving nothing to go to waste.

The diet should consist almost wholly of vegetable fats, sour milk, nuts, fruits, salads, and eggs, with a limited amount of readily digestible carbohydrates.

The following menu is given as a fair example of selection as to quantity and combinations:

BREAKFAST

Cantaloup, orange, grapes, pears, or persimmons

Two or three eggs, whipped five minutes, adding a teaspoonful of lemon juice, and one of sugar to each egg

LUNCHEON

A green salad eaten with nuts, a dash of lemon juice and olive-oil

One or two fresh vegetables, including a baked potato

One egg prepared as for breakfast

A glass of sour milk

DINNER

A green salad, with nuts and oil

Eggs or buttermilk

One or two fresh vegetables

A baked potato

The above menus may be increased in quantity after the first week or ten days, at least sufficient to meet all physical requirements, and the articles may be changed according to seasons.

In spring and summer all kinds of fruits and berries may be used, and such

Dietetic sug- vegetables as squash, aspara-
gestions for gus, spinach, beets, green
spring and peas and beans, turnips,
summer in con-
sumptive cases parsnips, carrots, and green

corn. All of these vegetables should be cooked in a casserole dish.

The bowels should be kept free. (See treatment for "Constipation," p. 437.)
 Drink copiously of pure water.

If the patient is not far advanced, he should seek employment which affords

Suggestions for
 the treatment
 of mild cases
 of consumption constant exercise in the open air, preferably in the hills or mountains, and the labor

should be of such a character as to cause normal activity of the liver and the bowels, and to enforce deep respiration. A spirometer or lung-measuring machine should be secured, and the patient should practise upon this night and morning, endeavoring each day to register from one to five cubic inches more than the previous day, until every air cell of the lungs is opened and the full capacity is reached, which should be about 315 cubic inches for the average man, and 250 for the woman of normal size.

Contrary to usual customs and theories, the patient should take a cool sponge bath every morning, in a warm room,

except in very cold weather. It should be followed by a vigorous rub down and deep breathing. Wear thin cotton under-clothes. Dress as lightly as possible, except when exposed where exercise or motion cannot be taken, such as riding in an open car or vehicle. Nature's method of producing hardihood and increasing endurance is by means of exposure. The house-plant life is conducive and favorable to tuberculosis.

The most important thing in the treatment of this dis-ease is perfect oxidation (breathing). Every cell of the lungs should be filled at every breath. The lungs should be filled to their extreme capacity, one hundred or more times a day, with pure, fresh, dustless air. The patient should never breathe the same breath twice; especially should he not breathe the air that has been used by other people, or by pet animals in a closed room.

General rules
of hygiene in
consumptive
cases

Importance of
perfect oxida-
tion

In order to carry out this regimen, it is necessary to live out of doors day and night, winter and summer.

The tubercular patient should sleep in a tent, or upon an open piazza every night, regardless of the weather or the temperature of the atmosphere. If these rules were observed the white plague would lose some of its terrors.

In cases of Consumption:

OMIT	EAT
Coffee	Cheese
Meat	Eggs
Stimulants	Preferably— Carrots Dried beans, Onions Peas Parsnips Potatoes Pumpkin Squash
Sweets	
Tea	
Tobacco	
	Fresh
	vegetables
	Figs
	Milk
	Raisins

HEART TROUBLE

The heart may well be called the thermometer of the body. Under normal conditions it is never heard from, but under abnormal conditions it is the first and the most reliable sentinel of the body. It stands eternally on duty and sends its danger signals to the brain with truthful accuracy, whether the trouble be of physical, mental, or emotional origin. A word or a sound sent through the air enters the ear and is analyzed by the brain, but the heart registers accurately its effect upon the physical body. We see a face or an occurrence a block away, and through the optic nerves it is comprehended by the brain, but the heart alone registers or gives back to the brain the effect upon the body.

This little engine, but little bigger than one's fist, pumps about twenty tons of blood every day above its own level in

The heart, a
sentinel of the
body

every body of average size, besides sending the life fluids of the blood-serum with lightning speed to the parts of the remotest anatomy, carting away the effete and poisonous matter to the lungs to be burned with oxygen, and carrying new building material from cell to cell for repairs. Should we not, therefore, take good care of, and heed the warnings of so wonderful a piece of automatic mechanism? Should we not study all its symptoms told in a language sympathetic and truthful, and as unerring as the laws that govern the movement of worlds in space?

The heart gives off various symptoms indicating the different kinds of sins we commit against the natural laws of our organisms. Medical men have named some of these symptoms as follows: Dilation, hypertrophy, atrophy, aneurism, inflammation, valvular derangement, etc., but in none of their reference works are the

Necessity for
heeding the
symptoms of
the heart

Some unde-
fined technical
terms

causes of these so-called dis-eases clearly defined. Fatty degeneration is the only one that is explained, the term meaning that the heart has been deprived of room in which to do its work, owing to surrounding fatty accumulations.

HEART TROUBLE—THE CAUSE

The blood enters the heart through the superior venae cavae flowing to the right lobe or auricle, then it is pumped by the heart beats to the right ventricle. From here it is forced through the pulmonary artery to the lungs where it is purified and charged with the oxygen we breathe. From the lungs the blood returns through the pulmonary veins to the left auricle of the heart, and then to the left ventricle. Having passed once through the purifying plant and twice through the distributing station, it is now sent out through the large systematic artery and distributed to every capillary cell of the body.

From the accumulation of gas caused by fermenting food the transverse colon becomes very much distended. This interferes with the free flow of blood into and out of the heart, causing at times a very faint heart action from a lack of inflow, and again a very heavy, rapid action when the blood spurts through. This produces dizziness and vertigo, and sometimes where the inflow is greater than the heart can discharge, there is arterial overflow; the heart ceases action, and the victim falls prostrate, and sometimes dies.

(See "Fermentation—The Symptoms," p. 426.)

Many cases of serious heart trouble are caused by habitual overeating, especially of grain and grain products. The calcareous substances from these products are deposited in the capillary vessels and in the joints, causing rheumatism,

rheumatoid arthritis, sciatica, lumbago, gout, and other evidences of our lack of knowledge. When the one thus afflicted follows a sedentary occupation, taking but little fresh air and exercise, a hardening or stiffening of the arteries is usually the result.

It is safe to say that if one would eat moderately, omit stimulants and narcotics, take but a limited quantity of starchy foods, a liberal amount of fresh air, deep breathing and exercise, heart trouble would be unknown.

HEART TROUBLE—THE REMEDY

For the treatment of those who are afflicted with heart trouble I would suggest a very limited diet of nuts, fruits, salads, fresh tuber and green vegetables, eggs, and a limited quantity of coarse foods, such as boiled whole wheat, wheat bran, grapes (seeds and all), and all coarse

Diet for heart
trouble

vegetables, with an abundance of mild exercise and fresh air.

In cases of heart trouble no greater mistake can be made than to cease

Exercise for heart trouble exercise, as is often prescribed by well-meaning doctors. This is compromising

with the enemy, with absolute certainty of ultimate defeat. Exercise, above all, is the very thing that is most needed.

The patient should begin moderately at first, daily increasing the time and the tensity of the work until a balance is established between the intake and the outflow of blood to the heart.

For foods to be eaten and omitted in cases of heart trouble, see p. 573. Also see menus for Fermentation.

DIS-EASES OF THE SKIN

There are two distinct kinds of skin dis-eases, namely—

1 Local

2 Constitutional

The *local* is that which manifests itself in the form of pimples or eruptions which come and go, and are of only a few days' duration. The second, or *constitutional* kind, is that which manifests itself by a permanent irritation or inflammation, which is classified as eczema, psoriasis, etc.

DIS-EASES OF THE SKIN—THE CAUSE

The local or temporary disorders are caused and controlled entirely by diet, usually overeating. Sometimes overingestion of some one particular food; for instance, too much acid taken in the form of berries, or citrus-fruits, will often produce an eruption or a rash within a few hours after eating.

Local disorders

That form of pimples or eruptions caused by overeating is usually augmented

Eruptions augmented by autointoxication

by constipation or by some form of intestinal congestion, which has been given the impressive title of autointoxication.

Autointoxication is a broad word that seems to have been invented, not for the purpose of explaining, but for the purpose of evading the necessity of explaining. The meaning of this word (self-poisoning) has been narrowed down by the profession to describe the above conditions, but in reality it should be applied to all forms of self-poisoning by overeating; eating the wrong combinations of food; the use of all stimulants and narcotics, such as tobacco, tea, coffee, liquor and wines of all kinds. In fact, self-poisoning from the last-named sources is as common as from errors in eating, and much more difficult to control.

Nearly all diseases are traceable directly to unexcreted poisons which the

body has been unable to throw off. These poisons are from two sources:

1 The natural poisons or gases that accumulate in the body under normal conditions, which, if prevented in any manner from passing off, will cause some kind of disorder which would come under the head of autointoxication.

2 The poisons that accumulate under abnormal conditions, such as hitherto described, and which are very often made manifest by eruptions of the skin.

That form of skin dis-ease known as eczema has baffled the medical world for many centuries. It has hitherto been treated locally by the most skilled and learned specialists, in the belief that it was of bacteriological origin, but modern experiments in the field of food chemistry have

Constitutional disorders

demonstrated the fact that it can be cured by scientific feeding, therefore it is only fair to assume that its origin or primary cause is due to some form of self-poisoning, caused by errors in eating and faulty metabolism.

DIS-EASES OF THE SKIN—THE TREATMENT

If a rash should appear on the skin after eating acid fruit or berries, one would naturally know the remedy; namely, omit acids, limit the quantity of food at the next meal, drink copiously of pure water and breathe an abundance of fresh air. The same general remedy should be observed in all cases.

The pimples or eruptions will gradually disappear when the causes are removed, and the same rule will apply to eczema or any chronic form of skin irritation. The patient should first be put upon a short fast of two or three days'

**Preliminary
treatment for
dis-eases of
the skin**

duration, and caused to perspire freely each day for an hour or so. This can be accomplished by the aid of the Turkish bath, but preferably by exercise. On the first day the fast should be broken by taking either the juice of such fruits as plums, peaches, apples, grapes, and pears, or the juice of cantaloup and watermelon.

DIET FOR DIS-EASES OF THE SKIN

The diet should be gradually broadened by the addition of green salads, uncooked carrots, onions and turnips, and a limited quantity of such cooked vegetables as spinach, asparagus, squash, fresh corn, green peas or beans when in season. Later, the diet should be confined mainly to egg whites, skimmed milk, nuts, sweet fruits, salads, fresh green vegetables, including a very limited quantity of sugar and coarse cereals, two or three times a week.

DIET FOR CHRONIC ECZEMA

In extreme and chronic cases of eczema the diet should be confined entirely to green salads, sweet fruits, fresh vegetables, and about two ounces of olive-oil daily, feeding the body always somewhat below its normal requirements as indicated by hunger.

Under this diet and regimen the patient will, of course, lose weight and possibly strength, but the body will so completely make use of all nutrition and the elimination of all waste will be made so completely, through the excretory channels, that the disease will gradually disappear, owing to the removal of its primary causes.

For "Sweet Fruits," see Lesson VIII, p. 313.

APPENDICITIS

There are three large colons in the intestinal tract which form an inverted U, the "ascending," "transverse," and "descending" colons. The descending colon is situated on the left side, its lower part opening into the rectal cavity. The ascending colon, located on the right side, connects with the small intestines, while the transverse colon goes across at a point opposite the navel, connecting the two.

To the lower part of the ascending colon is attached the vermiform appendix.

The vermiform appendix is a useful organ. Authorities are much divided as to the function of this organ. Many claim that

it is a relic of anthropoid man, while others contend that it is a useful and important part of the anatomy. In the opinion of the writer it secretes a valuable digestive fluid and therefore performs a function valuable both to digestion and to alimentation. In the ascending colon is the only place in the thirty-six feet of intestinal tubing where the fecal matter must rise against the law of gravity, therefore, if there is any congestion throughout this canal, it is most likely to occur in this colon. While the bowels may seem to act normally, yet, owing to the tremendous amount of waste matter necessary to be conveyed from the body, and the peristaltic action involved in moving it along, especially at this point, some of the fecal matter often lodges

under the small folds and in the flexuous surfaces of this colon, decomposing and causing an acute form of inflammation. The vermiform appendix, being attached to this inflamed colon, becomes inflamed also. In other words, this inoffensive and useful little organ suffers the penalty of being in bad company.

Thus it is seen that appendicitis, so-called, is merely a form of fevered or irritated colon; hence the old-fashioned diagnosis—"bowel inflammation"—before appendicitis became popular, and profitable, was in reality correct. Knowing the cause—the physiology of appendicitis—the remedy becomes a simple one.

Old diagnosis
correct

APPENDICITIS—THE SYMPTOMS

The symptoms of appendicitis (bowel inflammation) are usually pain, at times sharp, but generally dull, in the lower abdomen on the right side.

APPENDICITIS—THE TREATMENT
(IN MILD CASES)

If the pain is dull and intermittent, the patient should cease work, especially that vocation which necessitates being on foot, and spend at least twenty-four hours, most of the time in a sitting or reclining position. All such substances as meat, cereal and cereal products, sweets, milk, tea, coffee, cocoa, and all stimulating beverages should be omitted.

The patient should take high enemas (knee or chest position) of lukewarm

**A natural
remedy** water, thus removing as much of the congested fecal matter as possible. Take

from two to three tablespoonfuls of olive-oil, and two or three cups of hot water several times a day. The application of an ice-bag will sometimes afford much relief, and has a tendency to reduce the inflammatory process. Too much emphasis cannot be laid upon the fact that in any inflammatory condition of the

stomach or intestines, rest for these organs is imperatively demanded.

APPENDICITIS—THE DIET

After the first day or two, the following diet should be adopted and continued for a few days until the pain has ceased and the bowels are restored to normal action:

BREAKFAST

A cup of hot water
One or two exceedingly ripe bananas peeled
and baked in a hot oven
One egg, whipped five minutes; sugar to
taste; flavor with lemon or fruit-juice
A glass of water

LUNCHEON

A salad of anything green
Liberal portion of boiled onions

DINNER

Spinach, or a green salad, same as at luncheon
Green beans, or peas, if in season, rejecting
all the fiber; or, carrots or parsnips

CHRONIC OR SEVERE CASES OF APPENDICITIS

The errors in diet that cause fermentation and superacidity in the stomach will also cause fermentation and inflammation in the intestines.

A constipated condition in the intestines so hinders the natural flow of food-matter that in extreme cases of inflammation and suppuration the congested matter might be forced into the vermiform appendix, thus causing what is termed "appendicitis," and under these conditions the removal of the appendix might be advisable, but in the opinion of the writer more lives have been sacrificed on the operating table than the old-fashioned doctors ever lost from "bowel inflammation" before this disease was named "appendicitis," and before the knife was applied as a remedy.

There should be injected into the rectum a tablespoonful of olive-oil, followed immediately by an enema of hot

water at a temperature of about 115 degrees. This should be retained as long as possible. In order to aid Treatment in severe cases in this process, the head might be lowered, and the feet slightly elevated so as to relieve the strain upon the rectal muscles. In very severe cases an ice pack may be placed over the lower abdomen for five minutes. The ice pack should be kept in place until the temperature is lowered and the pain relieved.

THE DIET IN SEVERE CASES OF APPENDICITIS

From three to four quarts of cool water should be taken the first day and all food omitted. The second day fruit-juices and olive-oil should be administered. This treatment should be continued for several days, or until the pain is relieved,

when the diet for milder cases may be adopted in a reduced or limited form.

DANGERS OF INTESTINAL CONGESTION

All conditions of bowel inflammation are caused primarily by congestion of fecal matter in the intestinal tract. That which will relieve congestion, therefore, will, by removing the causes, relieve inflammation. Intestinal congestion has become one of the most common disorders among civilized people, because of the fact that a large percentage of the coarse material known as cellulose fiber has been removed from their food by super-civilized methods of preparation. For instance, in modern milling methods, every trace of cellulose is removed from the grain, leaving nothing

*Causes of
appendicitis*

but a white mass of unbalanced food material, largely carbohydrates, and the peelings are removed from all kinds of fruits and vegetables. Thus the diet of civilized man has become woefully impoverished in cellulose and mineral salts, with the result that there is nothing left in the diet to stimulate the liver and the peristaltic activity of the intestinal tract.

Evils of the
civilized diet

This condition is largely augmented by flesh food, all sedative drugs, and intoxicating drinks which have become so conspicuous in the diet of modern civilization.

Why coarse
food is neces-
sary

The intestinal (digestive and eliminative) organs of man, through the millions of years of his development, have been built up on the primitive plan. They have been shaped by the process of ages to accommodate coarse food, therefore a generous amount of non-nutritive cellulose is absolutely necessary to both the digestion of food and the elimination of

waste. The liberal use of cereal bran puts back into the diet that which modern milling methods have taken out of it.

The use of wheat bran and the seeds of grapes in the treatment of appendicitis

Remedial
value of
coarse food

has both a scientific and a common-sense basis. The bran and the seeds pass into

the various folds, wrinkles and turns of the intestines, and sweep out the congested fecal matter which is undergoing decomposition and causing inflammation. After the bowels have been thoroughly cleansed, the patient should adopt a fresh vegetable diet selected from the list heretofore given, drinking an abundance of water both at meals and between meals.

Under these conditions most symptoms of appendicitis will disappear, and if the diet is made to consist of a sufficient quantity of coarse food, all causes of bowel inflammation will be removed.

